Defining Liveability in a Chinese Context: determining the qualities of liveability at the level of residential streets in Shanghai

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by

Aura – Luciana Istrate

Department of Architecture
University of Liverpool, United Kingdom
Xi'an Jiaotong-Liverpool University, China

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DECLARATION

I hereby certify that this dissertation is the result of my own work, except where otherwise indicated in the text, and appropriate credit is given. I declare that this dissertation describes original work that has not previously been presented for the award of any other degree of any institution.

Signed,

Aura-Luciana Istrate

April 2019

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ABSTRACT

In Chinese cities, existing studies of liveability have either produced broad and unspecific results, or have overlooked liveability at the level of the street, in direct connection to the way people live.

For this research, Shanghai, a Chinese city with foreign influences, is selected as case study city. The first stage of the study was conducted with design and planning professionals. Thereafter, an extensive field study consisting of interviews with residents and systematic observations was conducted on fifteen selected street sites nominalized as S, M, L, XL1 and XL2 streets, according to their historical-morphological characteristics.

The study puts forth the definition of liveability at the level of residential streets in Shanghai through six liveability qualities: 'the Local Humanized Environment', 'Physical Facilities for Living and the Mix of Uses', 'Local Economic Activities', 'Safety', 'Social Interaction and Public Life', and 'Sense of Place and Belonging'. The study reveals the value of social life and the particular way it manifests in Shanghai especially on the smallest streets (S and M streets). This has been particularly captured through the context-sensitive qualities of 'social interaction and public life', and 'sense of place and belonging', which are reinforced by the 'local economic activities' on residential streets. In regard to these three vulnerable, yet crucial qualities of liveability in Shanghai, the study identified the most significant differences when compared to the international literature on liveable streets.

This research offers guidance to urban design and planning in order to improve liveability in this Chinese context.

植根于中国城市的宜居性定义：以上海街道品质研究为例

Aura-Luciana Istrate

摘要

已有对中国城市宜居性的研究，往往太宽泛不够具体，或者忽略了与人们生活方式的直接相关的街道层面之宜居性。

本研究以受外国影响的中国城市「上海」作为案例城市。本研究第一阶段的研究对象为在上海从事设计与规划工作的专业人士。在第二阶段，本研究根据不同的街道形态特征及历史演化过程，将街道分为S，M，L，XL1和XL2不同类型，进行了深入的实地调研，具体包括对当地居民的访谈，以及系统观察法。

对本研究结果的综合分析建立了上海住区街道宜居性的六个特质：当地人文环境；生活设施与混合用途；当地经济活动；安全；社交互动及公共生活；地方归属感。

该研究揭示了社会生活的价值及其在上海特别是在最小尺度的街道（S和M街道）上的表现方式，主要是通过“社交互动及公共生活”和“地方归属感”这两种带有地域性的特质来体现的，而这两个特质又通过住区街道上的“当地经济活动”得到强化。这三个特质既脆弱又对上海的宜居性至关重要。该研究比较了这些特质相对于已有国际文献中的独特之处。

本研究为中国城市设计与规划实现更好的宜居性提供了指导。

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ABBREVIATIONS AND ACRONYMS

AIA – American Institute of Architects
ASLA – American Society of Landscape Architects
CABE – Commission of Architecture and the Built Environment (in the United Kingdom)
CAJ – China Academic Journals
CNKI – China National Knowledge Infrastructure
CSUS – Chinese Society of Urban Studies
EIU – The Economist Intelligence Unit
FAR – Floor Area Ratio
GPS – Global Positioning System
HGV – heavy goods vehicle
ICLEI – Local Governments for Sustainability
KFC – Kentucky Fried Chicken
KTV – Karaoke Television
LCV – light commercial vehicle
LGV – light goods vehicle
MOHURD – Ministry of Housing and Urban-Rural Development in China
NARC – National Association of Regional Councils (in the United States of America)
NBS – National Bureau of Statistics (in China)
NGO – Non-Governmental Organization
NRC – National Research Council (United States of America)
ODPM – Office of the Deputy Prime Minister (United Kingdom)
PEDS – Pedestrian Environment Data Scan (Clifton et al., 2007)
SPACES – Systematic Pedestrian and Cycling Environmental Scan (Pikora et al., 2002)
PCE – Personal Car Equivalent
QOL – Quality of Life index
SWB – Subjective Well-Being index
TOD – Transit Oriented Development
UDC – Urban Design Compendium

UK – United Kingdom
ULI – Urban Land Institute
UN – United Nations
UNEP – United Nations Environment Programme
UNDP – United Nations Development Programme
USA – United States of Americas
WHO – World Health Organization
WSSD – World Summit on Sustainable Development (Johannesbourg)

S; M; L; XL (streets) – small (dense and narrow streets, very short blocks); medium (narrow streets, short blocks); large (wider streets, large blocks); extra-large (very wide roadways, large blocks)

GLOSSARY AND NOMENCLATURE

Puxi (浦西)	area of Shanghai situated on the west banks of Huangpu River. It includes the historically-developed areas of the Old Town and the former Foreign Concessions.
Pudong (浦东)	area of Shanghai situated on the east banks of Huangpu River, representing the most recently developed district in Shanghai, administratively referred to as Pudong New Area. It includes the Lujiazui Financial Centre
(foreign) Concession	areas in Shanghai that were governed and occupied by foreign powers, established towards the end of the Imperial Era.
Li (里) **compounds**	mixed compounds of housing with family businesses developed in Shanghai during the Concession years, combining Western influences with Chinese features
Lilong (里弄) **Houses**	houses in the *li* compounds, aligned along the inner alleys called *long*
Shikumen (石库门)	stone-framed entrances leading into a *li* compound
Work-units (单位, ***dānwèi*****)**	Large residential enclosed areas developed on a pre-established layout, especially during the Socialist period in China (1950s-1980s)
Hukou (湖口)	residency registration in China provided at birth, which can be either agricultural (rural), or non-agricultural (urban) (Kamal-Chaoui, Leman & Rufei, 2009)
Urban Village (龚诚村, ***gōngchéngcūn*****)**	refers to a former village area that remained unchanged in the context of a fast developing city, in which the local infrastructure is apart from the city infrastructure (Chang & Tipple, 2009)
Taichi (太极拳, ***tàijí quán*****)**	Chinese Martial Art
Mahjong (麻将, ***májiàng*****)**	Chinese tile-based game
(urban) Block	the smallest area that is surrounded by streets in a city

Superblock	a very large urban block, with either commercial or residential functions, barred to through traffic (Merriam-Webster Online Dictionary)
Street segment	A street segment is defined as the '*block faces between two intersections'* (Weisburd, Groff and Yang, 2013)
Redline	the demarcation line between the land of public use (of streets and roads) and the land of private use (of blocks and land lots)
Setback	the distance from the street edge to the first row of buildings built on the same side of the street
'Low-rise' building	a building of up to 5 floors above ground
'Mid-rise' building	a building of 6 to 10 floors above ground
'High-rise' building	a building of more than 10 floors above ground

1 INTRODUCTION

1.1 Introduction to Chapter 1

I conducted this research to understand the meaning of the liveability concept at the level of the streets in a Chinese context. In this chapter, I will set forth the entire relevance of this study, which is particularly important for the urban planning field of research. Additionally, I will introduce the main research question and the research objectives, that have been formulated to respond to the identified gap in the literature, as well as the structure of the thesis.

1.2 Significance of the Study

The ambiguity surrounding the concept of 'liveability' is derived from the fact that it is a concept "*that people seem to recognize, but is difficult to define it in a manner that everyone understands*" (Balsas, 2004, p.103). However, the importance of framing urban liveability is reflected through the major differences that appear between aspirations and the liveability outcomes in cities around the world (Douglass, 2002a). More than this, there are inconsistencies between the academic research findings and policy making concerning liveability (Pacione, 2003a). Therefore, as other scholars argued (van Kamp, Leidelmeijer, Marsman & de Hollander, 2003; Liu & Wang, 2013; Yuan, 2005), clarification of the definition of liveability is important for advancing the theory and practice of liveability.

Therefore, in contrast to the vague, global conceptualization of liveability that is derived from a political perspective, and in addition to the theoretical, academic polemic on the liveability paradigm, this research introduces the empirical reality from the field in order to inform the liveability definition in a Chinese context. Furthermore, this research problematizes the generalization of and the vagueness in the adopted principles when planning for liveability, because, although global documents (see for instance United Nations (UN) Conferences Habitat I, II and III) establish a direction of commitment for the governments around the world to address liveability issues, the interventions for liveability ought to be informed by each specific context of study.

This research considers specifically the implications of how liveability should be understood in relation to residential streets. As Doxiadis (1970) argued, people need constancy in the physical plan of a room, of a house, a street or a square and even that of a community. Therefore, 'liveability' can become a clearly understood notion at the level of the street, considering the street as a basic spatial unit that has to fit the human condition, representing, at the same time, a main form of public space.

In China, urban studies professionals have often adopted a perspective of liveability that could be critiqued as 'superficial'. Influenced by the varying universal conceptualizations of liveability, there are only few professionals that are embodying some understanding of liveability within the specific Chinese context (see for instance Ma, 2007). However, considering how the perception of the city's inhabitants is depending upon their subculture (Pacione, 2003a), the principles of liveability that have been previously conceived in other Western countries may not apply in the same way in China. Furthermore, although several attempts have been made to assess and rank liveable cities in China (with contrasting outcomes), the understanding of liveability at the local[1] level of analysis (of streets and communities) has been overlooked.

In this manner, despite a significant need for bottom-up approaches in living areas, as well as in public space studies in China (Chang & Tipple, 2009; Friedmann, 2007), no systematic study on street-life and liveability has been found in this context. To bridge this gap and to capture the understanding of liveability at the level of the streets in a Chinese context, this study in Shanghai is put forward.

Shanghai is a city in a liminal position between the East and the West due to historical foreign influences to the city development. Furthermore, presenting multiple typologies of streets, some with more foreign influences, others specific to the Chinese urban landscape, this research identifies Shanghai as an opportune context for an empirical study on 'liveability' - a concept which has been theorized primarily in the Euro-American discourse.

This research on liveable streets in the context of a Chinese megacity has importance especially at this moment when the Ministry of Housing and Urban-Rural Development (MOHURD) in China has announced a new urban planning

[1] 'Local' as in 'the local level of analysis' refers to a spatial unit of small scale (in contrast to a 'wider level of analysis' or to 'the city level of analysis').

directive (in 2015) through which the gated residential compounds should gradually open to the public throughway (Guo for China Daily, 2016).

Moreover, this research has not only developed an evaluation system to assess liveability on residential streets in Shanghai, but it has also used the street level as a basic unit for understanding the subjective and objective aspects that frame the understanding of the liveability concept.

In the end, considering the acute need to contextualize the concept of 'liveability' towards its implementation, this research grounds and makes possible the formulation of context-specific urban policies that target liveability. Furthermore, based on the results of this research, urban designers and planners can apply the recommended interventions while seeking liveability in the Chinese context.

1.3 Why is it important to conduct research on liveability in China?

Urban settlements in China have been facing major political-economic shifts, from the ancient, 'cosmic' Chinese cities (Kostof, 1999:2012; Wu & Gaubatz, 2013) to the Maoist cities of work-units (Friedmann, 2007), to cities that gradually opened-up to the market system under the leadership of Deng Xiaoping. What is more, along with the changes in the political-economic ideologies, there has been witnessed a transition from a predominantly rural country, to what is currently experienced as an unprecedented urbanization process in China (Friedmann, 2007; Pan, 2016; Zhang & Song, 2003; World Bank, 2008). With 59.4% of the total Chinese population living in urban areas at the end of 2017 (National Bureau of Statistics (NBS) in China, quoted in Sun, 2017 for People's Daily Online), further estimates predict that by 2030 China will have over 70% urban population (Sun et al., 2017). What is more, from 2010 onwards, the Chinese Government has decided to follow an 'active' urbanization (as opposed to a 'passive' urbanization driven by uncontrolled phenomena), aimed to increase the domestic demand, and thereby sustain China's economic growth (Pan, 2016). Furthermore, while the objectives of the highly urbanized China are to provide economic development, infrastructure and social services for both urban and rural citizens (Pan, 2016), as well as the environment and the energy resources are under high pressure (World Bank, 2008; World Bank & Development Research Center of the State Council, 2014).

Visible especially in Chinese megacities of over 10 million people, the rapid urbanization process induced problems of traffic congestion, irrational utilization of land, air and water pollution, biodiversity deterioration, and of inadequate green areas (Yuan, 2005). Other problems, such as the housing shortage in cities, together with overwhelmed social services have also multiplied along with the rapid urbanization (Zhang & Song, 2003; Ma, 2007).

Moreover, although over the past 20 years, China has started to shift part of its attention from quantity to quality in housing provision in urban areas (Qin, Bu & Lin, 2003), it is still needed to actively seek improvement concerning the living conditions in Chinese cities. Such improvements are especially needed considering that dramatic transformations including massive rural to urban migrations along with massive demolitions of old neighbourhoods that affect the people's sense of belonging, are currently taking place (Friedmann, 2007).

Furthermore, there is strong evidence that this is an important moment for studies on urban liveability in China, including the recent Central Committee Conference on Urbanization (2015) held by the Chinese Government, the first in 37 years since the last such meeting in 1978 - the year that brought along the reform and the opening-up policies in China (Chi for ChinaDaily, 2015; Guo for ChinaDaily, 2016). This conference was held at a moment identified as a "*crucial transition period from a rural society to urban society*" (Chi, 2015), when the process of urbanization brought along major challenges in cities (Chi, 2015). In connection to the conference, commentaries included the conceptualization of the city as centred on 'people', rather than on economic development, and the high level of urbanization as needing to be correlated to liveability in cities (People's Daily, 2015; Hua Xia for Xinhuanet, 2015).

Thus, the time is opportune for a closer consideration of liveability in new developments and redevelopments, while targeting a 'harmonious urbanization' (see Pan, 2016) in China. The call for a 'harmonious urbanization' is epitomized by the fact that "*the principles of harmony between human and nature and harmony between individuals and the society have to be effectively implemented during the entire urbanization process*" in China (Pan, 2016, p. 80).

Lastly, while China is experiencing twists and turns in urban development, seeking to find its best path for the future (Hu, A., 2012), it cannot depend upon the

experiences of western countries, but it should identify its own way forward, that includes consideration for local contexts and characteristics (Wu, L.Y., 2005).

1.4 Why conduct research on liveability at the streets level, in China?

Streets have long been emphasized as a vital component in cities (Appleyard, 1981; Kim, 2012; Jacobs, A., 1995; Jacobs, J., 1961:1993), as "*an elemental setting for everyday activity*" (Harvey & Aultman-Hall, 2016, p.149), with the main purpose of bringing people together (Jacobs, Macdonald & Rofé, 2002). Thus, through the display of daily life interactions, the street can be regarded as a public arena. Nevertheless, in modern times, there has been a tendency to over-control the urban space of the street happened because "*new forces - like motor vehicles - have entered the game, and their impact on the city has not been understood"* (Doxiadis, 1970, p.11). However, international scholars are asserting that streets should be used for more than transportation, re-emphasizing the urban and the social functions of the street (Jacobs, 1961:1993; Kim, 2012; Montgomery, 1998).

Furthermore, the importance of studying liveability at the street level is based especially on the fact that streetscapes "*occupy a midlevel spatial scale*" (Harvey & Aultman-Hall, 2016, p. 149) and can be analysed in direct relation to habitation units (and to how people live), however, by forming a network in the city, streets can visibly affect liveability at the city level as well. For instance, Jane Jacobs (1961:1993) emphasized that if the streets in a city are interesting, then the city itself will be interesting, whereas if they are dull, the whole city is experienced as dull. Expanding the theory of Jacobs (1961:1993), one assumption can be that, if the streets in a city are liveable, then the city might also be considered liveable. Furthermore, the need to study liveability at the level of the streets can also be understood from the statement of Harvey & Aultman-Hall that "*increasing interest in urban livability demands that geographers and planners more precisely define what constitutes a livable streetscape, a fundamental building block of urban places*" (Harvey & Aultman-Hall, 2016, p.149).

In China, the role of the street has been changing throughout history. The streets have been under the complete control of the state since Imperialism, when any unorganized commercial activity on the street was forbidden (Gaubatz, 2008; Xie, 2012). Towards the end of the Imperial Era, a mix of housing and commercial

activities emerged, which generated liveliness on the old streets (Xie, 2012). However, while adopting the modern principles of city planning, design efforts have been oriented towards pre-decided and un-flexible solutions for the public space of the street (Xie, 2012).

Currently, in Chinese cities, despite the promotion of 'people-oriented developments' (Liu & Wang, 2013; Wang, Zhu & Zhang, 2011; Zhang W., 2016), the circulation function of the street has been prioritized, while the social role of the street has often been ignored. Furthermore, under the current political system in China, it is still debatable the number of people desired on streets and how much public life or public activity would be allowed[2].

However, the fact that the Ministry of Housing and Urban-Rural Development (MOHURD) announced in 2015 a new policy through which gated communities are expected to gradually open to the space of the street (Guo for China Daily, 2016), there can be understood the intention to conceive the street more as a form of 'public space' (also foreseen by Miao, 2003). This directive was announced in connection to the Central Committee Conference on Urbanization (2015), where, among goals of sustainable, smart, compact (Chi, 2015) and liveable cities (Shanghai Street Design Guidelines, 2016), the State Council also indicated the need to rethink a more appropriate scale of development for urban blocks and urban streets (Shanghai Street Design Guidelines, 2016).

In conjunction with this new directive and to the safety concerns voiced by the people at the possibility of providing open-access to communities, MOHURD added that no immediate action will be taken, but that they still encourage cities to make new urban plans that consider the directive given, in addition to the existing situation and the interest of the residents (Guo, 2016). Furthermore, although the directive of providing open-access to communities needs further legislative support, as the Supreme People's Court added (Guo, 2016), this time is opportune for starting discussions on liveable streets in China. Lastly, it is unclear whether China's new policy for opening the gated compounds to the street has been influenced by a Western ideal of liveable streets, or if it reflects a real social need in Chinese cities. Thereby, this research on liveability at the streets level in a Chinese context has the

[2] As an example, see People's Square in Shanghai, where any public activity is highly controlled and under continuous surveillance.

additional importance of contextually considering the debate of providing open-access from the street to residential communities.

1.5 Why conduct this research in Shanghai, at this time?

In Shanghai, a hybrid city with Chinese characteristics and Western influences, cultures and lifestyles can be considered to be juxtaposed. The Chinese characteristics and the Western influences in Shanghai are reflected in the historical layers of the city, and in the physical characteristics of the built environment. The East and the West were linked in a "*context of imperialism*", when the "*flow of capital, ideas and technologies*" began "*transforming Shanghai's urban structure and architectural style*" (Chen, 2003, quoted in Chen, Y., 2007, p.18). Thereby, due to its history of Western concessions[3] that marked the beginning of the modern period in China (Chen Y., 2007), and being recently ranked as the most attractive place in China for international talent (Tan, 2018 for Shanghaiist), Shanghai can be considered as the '*most open and Western of cities in China*' (Orum et al., 2009, p.388).

For China, Shanghai is a strategically-positioned city to develop domestic economy while also developing business connections with foreigners (Wu, F., 2009). Due to its vibrant economy, Shanghai is a "*strong competitor in the global arena*"[4] (Chen, Chen, 2015, p. 7). Furthermore, based on its population size and due to its global recognisability, Shanghai is aspiring towards the status of a 'global city' (Sassen, 2003; Liu & Wang, 2013). Yet, other scholars argued that Shanghai is far from being a real 'global city', a status which cannot be reached by merely restoring the prominent past of Shanghai as a global centre of trade and business (Wu, F., 2009). Instead, to be seen as a real global city, Shanghai will have to perform well in terms of liveability and to solve its environmental issues, argued some scholars (see for instance Wang, Zhu & Zhang, 2011).

Moreover, to coordinate the development between the urban and the rural zones, as well as to illustrate Shanghai's multicultural past (Greenspan, 2014), in 2001 the development strategy of 'One City, Nine Towns' has been advanced in

[3] The concessions in Shanghai were areas that were governed and occupied by foreign powers, established towards the end of the Imperial Era (see more details in section 3.3.1, page 72 Chapter 3).

[4] In 2010, Shanghai's GDP ($256 billion) surpassed the GDP of Hong Kong ($224 billion) and of Singapore ($222 billion), (Chen, Chen, 2015).

Shanghai (den Hartog, 2010, quoted in Greenspan, 2014; Kamal-Choui, Leeman & Rufei, 2009). Each of the nine satellite towns has been conceptualized with its own theme, six of them inspired from towns in Western Europe[5] (den Hartog, 2010, quoted in Greenspan, 2014). However, building entire European-inspired towns was unsuccessful, because "*the attempt to impose a town from elsewhere collided with local conditions*" (Greenspan, 2014, p. 136), particularly not fitting the Chinese norms of having enclosed residential compounds with buildings facing South. Wuding Ma also criticized the development of residencies in 'European Style' in Shanghai, in which the people "*were allured to pursue stylish and fashionable houses*" (Ma, W., 2007, p. 64), in contrast to other residential communities that had "*cultural originalities*" meeting "*people's emotional needs*" (Ma W., 2007, p. 64). These encounters are proof that, although some Chinese might regard the West as leading the way to what is considered modern and superior (Yang, 1996), and although there have been established historical connections to the West in Shanghai, adopting Western principles of design and planning without a close consideration of Chinese specificities is inappropriate.

Moreover, Shanghai currently attracts the highest attention among Chinese cities in what concerns liveability, with multiple rankings that often consider Shanghai as benchmark. For example, in 2005, Shanghai has been ranked as the most liveable city for its economic power in a joint research by Horizon Group[6] and the Business Weekly Journal (Yuan, 2005). Furthermore, in 2006, Shanghai topped the list of the most liveable cities in China based on domestic internet voting (Wang, Zhu & Zhang, 2011). However, in the liveable city ranking released at the Beijing Summit of China City Forum in 2007, none of the four provincial-level municipalities[7], including Shanghai, were amongst the top ten ranked cities (Wang Y., 2007, quoted in Wang, Zhu & Zhang, 2011). Nevertheless, the 2010 slogan of the Shanghai World Expo, 'Better City, Better Life', has been considered proof that the authorities are aware of their role in improving urban living conditions (de Jong, Joss, Schaven, Zhan & Weijnen, 2015).

[5] The satellite towns that have been conceptualized with Western themes are: Luodian (Swedish Town); Pujiang (Italian Town); Gaoqiao (Dutch Town); Songjiang (Thames Town); Anting (German Town); Fengcheng (Spanish Town).

[6] The Horizon Research Consultancy Group, sometimes simply referred to as Horizon, or Horizon Group, is providing integrated data-based market research with consultancy on various domains, including Real Estate.

[7] The four provincial-level municipalities in China, under the direct control of the Central Government are: Beijing, Tianjin, Shanghai, Chongqing.

Summarising the aspiration towards the 'City of Harmony'[8], this became the leitmotiv of planning in China, for which Shanghai can be considered a leading city. Moreover, liveability in Shanghai is an essential condition, "*especially when the urban infrastructure is well developed and the environmental quality is an increasing concern"* (Wang, Zhu & Zhang, 2011, p.323). Furthermore, as a response to the Central Committee Conference on Urbanization (2015) held by the Communist Party of China (CPC) with the aim to identify strategies for building sustainable and liveable cities, Shanghai is currently "*channelling great energy into its urban transformation*" (Shanghai Street Design Guidelines, 2016, p.6). For example, in the strategic direction of achieving liveability, the Shanghai Master Plan (2015-2040) established as its primary objectives: the prosperity, the innovation, the ecological health and the happiness of people (Shanghai Street Design Guidelines, 2016).

"*Shanghai is a city hungry for the future*" added Anna Greenspan (2014, p.1), and although it is situated in a special position in China, Shanghai can lead the way towards liveability. Moreover, Shanghai can become an inspiration for other Chinese cities in which foreign influences have also been historically received (such as, for instance, Qingdao), as well as for cities that currently attract foreigners due to their dynamic economies (such as Shenzhen). Furthermore, by improving liveability, Shanghai will be able to challenge other powerful hybrid Asian-European cities such as Hong Kong and Singapore. Nevertheless, "*Shanghai's importance as a model for twenty-first century urbanism rests not only on its high-speed trains and super-tall skyscrapers, but also, just as vitally, on its street food, street markets and street life*" (Greenspan, 2018, p.75), which distinguishes it from many other global competitors.

Consequently, for determining whether and how should the Western-initiated concept of liveability be adopted in a Chinese context, it is opportune to first study and test liveability in Shanghai, because of the Western influence on the city development. Finally, it has to be re-emphasized that prior to any implementations, comprehensive studies are needed for a thorough understanding of what determines liveability in a Chinese context.

[8] The 'City of Harmony' has been defined in the "Shanghai Manual for Better Cities", outcome of the "World Expo 2010, Shanghai, China – Better City, Better Life", as referring to environments "where people are in harmony with nature, society and themselves", and with "harmony between generations" (UN, 2011, p. 10).

1.5.1 Streets in Shanghai

Historically, the Western influences in the development of Shanghai are also visible at the level of the streets, resulting in having streetscapes with various physical and morphological characteristics, according to the historical periods in which they have been planned (detailed in Chaper 3, section 3.3.1).

In recent years, there have been impressive advancements in the construction of urban roads and expressway networks in Shanghai (Pucher et al., 2007; Shanghai Street Design Guidelines, 2016), however, the high levels of pollution from automobile emissions in the central areas are an increasing concern (Wang, Zhu & Zhang, 2011). With the growing number of cars[9], at peak hours, "*more than half of the roads and intersections in Shanghai's central area are considered over-saturated*" (Yang et al., 2004, cited in Pucher et al., 2007, p.394).

Furthermore, on main roads in the central areas of Shanghai, there are many bicycles and e-bikes that compete with cars for roadway space, a reason why the large volumes of cycles are often viewed as a major source of roadway congestion (Pucher et al., 2007). More recently, with the 1.5million shared bicycles on the streets of Shanghai (Jing, 2017, for China Daily), the conflicts for the space of the street have been increasing, based on the poor management of parking spaces for cycles. Thus, although bicycles are very affordable, non-polluting, and enjoyed by the people (Cendrowski, 2017, for Fortune), the city authorities are trying to lower the number of bicycles by more than half (Jing, 2017, for China Daily). Hence, although the expansion and the improvement of facilities for cyclists and pedestrians is a top priority in Western countries, Shanghai and other Chinese cities are concentrated on ways of reducing bicycle use (Pucher et al., 2007). This response to road circulation issues needs to be considered in relation to liveability.

Moreover, with the ongoing focus on motorization in Shanghai, and despite the well-developed public transport system that includes a very extended metro[10] network, the social role of the streets is neglected. In this regard, the recently released Shanghai Street Design Guidelines (2016) urge the transformation of the street towards 'humanizing the space'. However, the Guidelines (2016) proposed practical recommendations framed on the concepts of safe, green, vibrant and smart

[9] Statistics shown a growth in car possession in Shanghai, doubling from 2009 to 2013 (NBS, 2015).

[10] In 2014, Shanghai Metro was the largest network in the world with 538.8km on 14 lines (International Railway Journal, 2014).

streets, without having an established theoretical background of these concepts advanced. Another downside of the Shanghai Street Design Guidelines (2016) is that they closely follow the models of other practical design guidelines[11] advanced in Western cities (such as from the United States (USA), Germany or the United Kingdom (UK)), according to the background of the foreign design studios that contributed to the guidelines. Furthermore, one more drawback of the Guidelines (2016) is represented by the limited understanding of the specific social contexts, despite the suggestion that 'people-oriented' principles should guide the transformation of the streets. In this regard, although the Guidelines (2016) mentioned that interviews with the residents have been conducted in Shanghai, it is not clear how the interviews with inhabitants informed the given design suggestions.

A further danger in the current approach aimed at achieving more varied and sophisticated public spaces in Shanghai is that of transforming the civic space into consumer spaces, with the main intention to attract shoppers and consumers, as Gaubatz (2008) and Flock (2014) argued. In the meantime, one indirect, potential benefit of studying liveable streets in Shanghai could be that, through the development of more pedestrian-friendly neighbourhoods, housing prices might get more stable, as it resulted from the study of Shen and Karimi (2017)[12].

Thus, a better understanding of the specific Shanghai context is necessary, in which the functions of the streets are considered from multiple perspectives, along with the involvement of the people with the space of the street, in order to comprehensively inform liveability on residential streets in this context.

[11] For a comparison, see for instance the Urban Design Compendium in the UK, UDC 1, 2000:2007 & UDC 2, 2007.

[12] Shen and Karimi (2017) demonstrated that on the better-connected streets in Shanghai there were increased property values, yet, the traffic corridors were factors that decreased the housing value.

1.6 The Main Research Question and the Research Objectives

The main research question for this study on liveability at the level of the streets is:

How is liveability to be understood and how can this concept be applied at the level of the street in a Chinese context?

Considering the imperative need to define liveability at this time in the Chinese context, (for which opportune is to select Shanghai as a case study city) and the need to provide guidance and recommendations for design and planning concerning liveable streets in this context, two research objectives have been defined for this study, formulated as follows:

Research Objective I: Define liveability at the level of the street in Shanghai based on a framework of influential liveability factors, relevant for this context.

Research Objective II: Inform design and planning of liveable streets in Shanghai by considering the effect of particular liveability factors at the street level.

1.7 Structure of the Thesis

Chapter 1 presents the need to problematize the understanding of liveability in a Chinese context.

Chapter 2 presents, in the first part, a review of literature on the theoretical understanding of the concept of liveability from the perspective of different stakeholders, and, in the second part, a review of studies related to liveable streets (from international contexts, as well as from China). Varying dimensions of liveability and attributes of liveable streets have been identified and are presented in this chapter.

The methodological approach for this study is presented in *Chapter 3*, including the research design, the street sites selection and the multiple tools of research employed during data collection and data analysis. The first stage of the study conducted with Shanghai professionals was meant to confirm and refine the dimensions and attributes of liveability extracted from the literature, and has additionally informed the detailed Methodological Framework of indicators for the empirical study on cases of residential streets.

The findings from the first stage of the study, including the theoretical understanding of liveability from the perspectives of Shanghai professionals are presented in *Chapter 4*. The findings from the empirical study on the cases of specific streets in Shanghai are presented in *Chapter 5* and *Chapter 6*, and are grouped according to the central research method employed – either interviews with residents or systematic observations. The discussion of all research findings is presented in *Chapter 7*, according to the research objectives. The final remarks, implications and recommendations are presented in *Chapter 8* (see Figure 1-1).

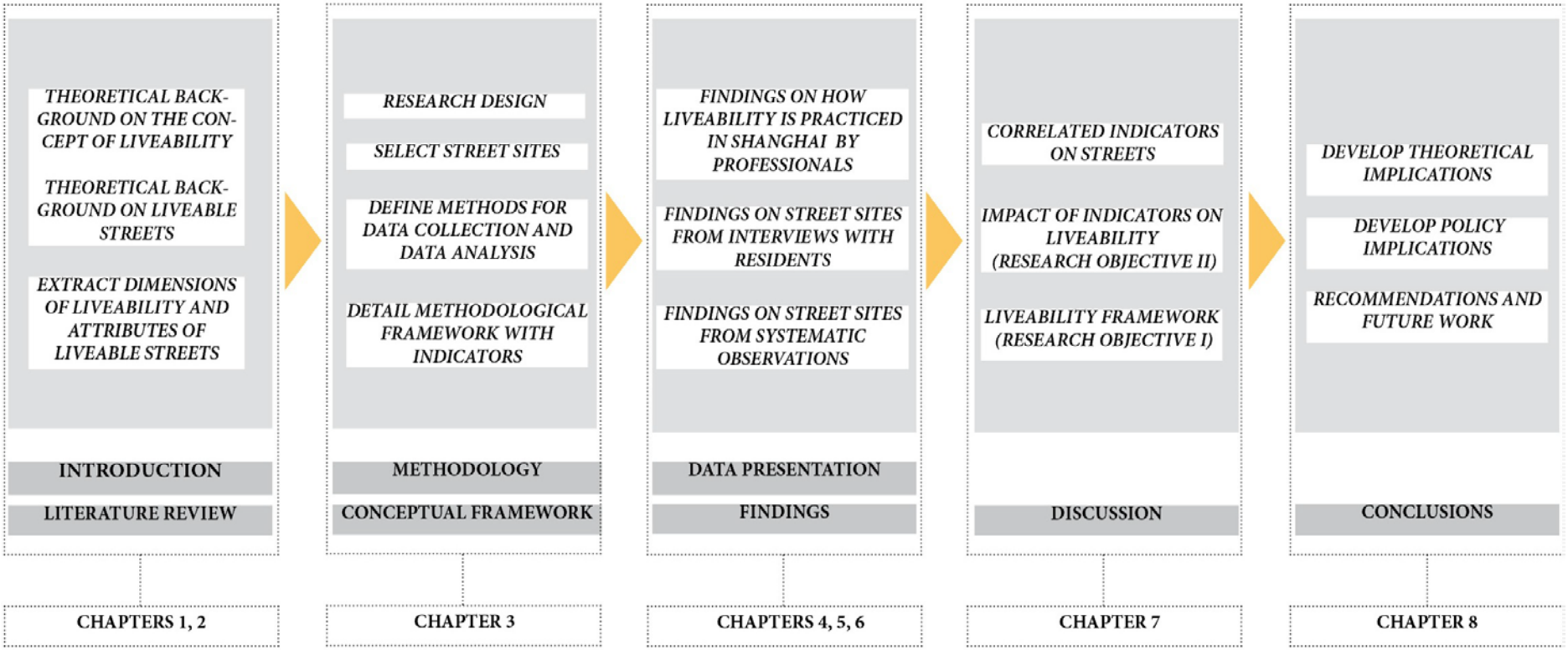

Figure 1-1: Structure of the Thesis

1.8 Conclusion to Chapter 1

This chapter has presented the relevance of studying the concept of liveability in a Chinese context at this time, when, although cities in China have a well-developed infrastructure, against a background of unprecedented urbanisation, effects on the environment and living conditions in cities present a concern. In this context, conceptualising urban liveability is essential. The chapter also presents the rationale for selecting Shanghai as a case study city, located and embedded in a Chinese context but experiencing Western influences, which is opportune for studying the Western-initiated concept of liveability. In addition, the chapter presents the reasoning behind studying liveability at the level of the streets, which, being public spaces in direct connection to habitation units, are likely to influence liveability in wider contexts, through the formed street network. The chapter introduced the context of Shanghai streets, where although there is a dominant focus on motorisation, an intention to offer greater consideration for the social character of the street is starting taking shape (which is also required at a national level through the recent MOHURD directive (2015), by providing open access to gated communities from the street). Finally, there have been formulated the main research question and research objectives for this study, and the thesis structure is presented, organised in eight chapters.

2 LITERATURE REVIEW

2.1 Introduction to Chapter 2

In this chapter, I will review the concept of liveability as it pertains to the field of urban planning (across the world and in China) and to streets particularly (in international studies and in the Chinese context).

For this review of literature, available documents, including journal papers, policy documents, as well as empirical studies have been extracted from several databases such as Google Scholar, Science Direct, Springer, Taylor and Francis, Scopus, China National Knowledge Infrastructure (CNKI), China Academic Journals (CAJ). For the systematic review, there have primarily been selected documents with 'liveability', 'livability', '宜居性' (yí jū xìng)[13] 'liveable streets', 'livable streets', '宜居的街道'(yí jū de jiēdào)[14] in title, abstract or associated key words. The focus of the literature has been placed particularly on China, while the wider, international liveability literature has been used as theoretical background. The international literature is based on the most frequently-quoted and frequently-appearing sources, while for the Chinese literature there has been extracted almost everything that was found available in connection to liveability.

Furthermore, after identifying the main attributes of liveability at the level of the streets, the literature search has been expanded to capture the main discussions and approaches on those liveability attributes. In this manner, through the review of literature, there has been consolidated a theoretical framework for studies on liveability at the level of the streets, including theories, attributes and constructs, indicators and methodological approaches.

[13] 'yí jū xìng' is the Chinese term for 'liveability'.
[14] 'yí jū de jiēdào' is the Chinese term for 'liveable streets'.

2.2 Conceptualizing the term 'liveability' – from early stages to the current interest on liveability

The 'liveable' term first appeared in the non-academic literature, with the connotation of '*suitable for living in'*, in Mansfield Park (novel written by Jane Austen), in 1814 (Online Etymology Dictionary). 'Liveable' or 'livable' has been earlier attested in the 1610s with the sense of 'likely to survive', however this sense became obsolete (Online Etymology Dictionary). Dictionary entries are still defining 'liveability' as referring to a place '*fit*', '*pleasant*' or '*suitable to live in*' (Longman Exams Dictionary, 2009; Advanced Learner's Dictionary, Oxford, 1998; MacMillan Online Dictionary, Merriam-Webster Online Dictionary).

Concerning urban development, early references to liveability can be found in geography and social sciences studies (Pacione, 1990; Hankins & Powers, 2009). In social sciences, the early usage of the term was linked to the concept of quality of life (Kankins & Powers, 2009). In geography, the early work addressed liveability from a behavioural-perceptual perspective (Pacione, 1990).

Liveability can be additionally associated with human settlements that provide acceptable conditions for living. The term 'settlement' originated from Greek, and it was defined by Doxiadis (1970) as a complex system of five elements: nature, man, society, buildings and networks. For Doxiadis (1970), the 'successful human settlement' was related to a balanced relationship between natural elements, humans and man-made elements. Along with other discussions concerned with amenities in human settlements in the 1960s-1970s (Yuan, 2005), the work of Doxiadis (1970) can be considered the root of the discussions for liveability in human settlements, although the term 'liveable' has not been particularly used (but there was much concern with building settlements suitable for humans to 'live' in).

Wang, Zhu & Zhang (2011) identified the period of the growing interest on liveability at the end of the 1980s, after the promotion of environmental awareness and after the sustainability recognition became more wide spread. This coincides with the two United Nations Conferences on Human Settlements, Habitat I (1976) and Habitat II (1996) that brought the sustainable and liveable theories into an international attention (Yuan, 2005). Habitat I (1976) established the improvement of the 'quality of life' as the most important objective of every policy concerning human settlements, additionally acknowledging the begun phenomena of

urbanization. According to the UN General Assembly (1976), improving the conditions in human settlements represented a prerequisite for responding to the needs of employment, housing, health services, education and recreation. Furthermore, for guiding global interventions, the direction of having more '*livable, attractive and efficient settlements which recognize human scale, the heritage and culture of people, and the special needs of disadvantaged groups'* (UN, 1976, section I, para. b.) has been introduced. On the same line, in the Urban Agenda of Habitat II (1996), the same objective as in Habitat I (1976) has been maintained, that of improving the quality of life for people. The endorsed universal goals of the Urban Agenda (1996) were: ensuring adequate shelter for all and making human settlements safer, healthier, more liveable, equitable, sustainable and productive. Most recently, Habitat III (2016) focusing on "*Making cities and human settlements inclusive, safe, resilient and sustainable*"[15], while bringing into focus the implementation of a New Urban Agenda, restated the commitment to a global sustainable urbanization. Yet, although the past UN Habitat Conferences I, II, III (1976, 1996, 2016 respectively) had similar objectives, illustrating the importance of improving the living conditions, the references to concepts such as 'liveability', 'quality of life' or 'wellbeing' were vague, without a specifically established meaning of these concepts in any of the Urban Agendas.

Nevertheless, constructing liveable cities and communities became a common ideal for governments and non-governmental organizations around the world (Wang, Zhu & Zhang, 2011).

Recently, in urban planning, liveability is receiving more attention due to the degrading conditions of living and due to other problems cities are facing such as congestion, pollution, poor infrastructure (Douglass, 2002a; Institute for Competitiveness, 2010). As Douglass (2002a) argued, in the actual rush to be among the top in what concerns growth and development, cities and regions prosper economically but leave unaddressed the social and environmental aspects.

Nevertheless, the concept of 'liveability' has different meanings to different people. It is a holistic concept (Andrews, 2001, quoted in Maghsoodi Tilaki, Abdullah, Bahauddin & Marzbali, 2014; Saitluanga, 2014) recognized by people, but not defined in a way that everyone agrees upon (Balsas, 2004; Pacione, 2003a;

15 Goal#11 from the seventeen Sustainable Development Goals (SDGs), established in the 2030 Agenda of Sustainable Development, adopted in 2015.

NARC, n.d.; NRC, 2002, quoted in Maghsoodi Tilaki et al., 2014; de Jong et al, 2015; de Chazal, 2010; Ling, Hamilton & Thomas, 2006). In this manner, other reviews of literature, liveability has been seen as a collection of characteristics that explain the attractive elements of a place people inhabit (Maghsoodi Tilaki et al., 2014); or, it has been considered that liveability refers to an '*ideal relationship between the urban environment and the social life it sustains'*, as Hankins and Powers (2009, p.848) highlighted. Other researchers considered that liveability is reflecting the need for public amenities (Anderson et al., 1997, quoted in Maghsoodi Tilaki et al., 2014; Lennard & Lennard, 1995) or that liveability is an element to create social welfare (Anderson et al., 1997, Smith,1973, quoted in Maghsoodi Tilaki et al., 2014). de Chazal (2010) concluded that the desires related to liveability can be totally different, from the different perspectives of single individuals to the perspectives of collective groups.

Overall, the first theories on improving human settlements in conjunction with the 'liveable' attribute, give 'liveability' the meaning of sum of favourable conditions in human settlements. Furthermore, the attempts to improve the conditions in human settlements, coinciding with the timespan of man pursuing 'liveability', is what determined the birth of urban planning as a discipline and profession, argued Ma (2007).

2.3 Liveability in human settlements, in relation to sustainability, quality of life, wellbeing, and the human needs

The liveability discourse is often intersected with theories on sustainability, quality of life, or well-being (see for instance UN Habitat II, 1996), as well as with the concepts of 'eco', 'smart', 'green', 'sustainable' cities and regions (see de Jong et al., 2015). To conceptualize liveability, it is important to identify the overlaps between these concepts as well as the areas of potential conflicts and complementarity (Gough, 2015). Additionally, it is important to establish the potential connections between liveability and the human needs, notions which often appeared together in international documents (see for instance UN Habitat II, 1996).

2.3.1 Liveability under the sustainability umbrella

As Gough (2015) demonstrated, liveability and sustainability are popular concepts for urban planning and for the general public discourse, because they are representative of values, priorities, and behaviours that many people advocate. The direct link between the two concepts was obvious for Salzano (1997) who argued that a liveable city is also a sustainable city, in the idea that it connects the past roots and the future prosperity of the people.

However, de Jong et al. (2015), in their study on concepts such as 'sustainable', 'eco', 'resilient', 'green', 'livable', cities, identified the 'sustainable' notion as an umbrella category "*in which much of the content of many others is contained*" (de Jong et al., 2015, p.5). Their findings positioned 'livability' as peripheral in relation to 'sustainability', with arguments that compared to other terms such as 'smart', 'eco' cities, that begun establishing their '*own conceptual worlds'* (de Jong et al., 2015, p.6), liveability didn't. Other studies, such as those carried out by de Chazal (2010) and the National Association of Regional Councils (NARC, n.d.) positioned liveability and sustainability on different scales, and the wider sustainability discussions very often included narrower, contextual discussions on liveability. Several scholars (Allen, 2010, quoted in Gough, 2015; de Chazal, 2010; van Kamp et al., 2003) identified that what increases the difficulty of defining liveability and sustainability is their continuous contorting and changing nature. Furthermore, although the two concepts echo the 'triple bottom line' with the three economic, environmental, and social pillars (de Jong et al., 2015), some scholars argued that sustainability implies a certain amount of ecological constraint (see for instance de Chazal, 2010; Newton, 2012), being initially defined in a stronger relation to the environmental concern[16] (Svanström, 2018). Notwithstanding, 'liveability' has also been regarded as bringing a pragmatism to the philosophical visions of sustainability, making it more achievable (Gough, 2015), through more direct measurement systems and indices.

[16] Sustainability has been put forth at the UN Conference on the Human Environment (Stockholm, 1972), in relation to environmental protection. Later on, sustainability has been defined at the intersection of the environment with the economic dimension (Brundtland Report, 1987) and with the social dimension (Johannesburg, 2002), resulting in having tree mutually reinforcing pillars.

2.3.2 Liveability, well-being, quality of life

Many scholarly activities on urban living environments are clustered around well-being and quality of life (Leby & Hashim, 2010), notions which are many times used as equivalent in meaning with liveability (see van Kamp et al. 2003, NRC 2002, Cervero 2009, Pacione 2003a).

Yet, the concept of well-being appears to have a more subjective connotation, the quality of life appears to have a more objective understanding, while liveability is positioned somewhere in-between these two concepts. The subjective connotation of well-being was very well suggested by de Chazal (2010) indicating that the desires related to well-being are inevitably varying from individual to individual. The more objective connotation of quality of life can be understood from Pacione's research (2003), when he mentioned that central to quality of life is the relationship between people and their everyday environments.

Moreover, in Habitat II, Chapter II and Chapter IV (UN, 1996), the 'liveability', 'quality of life' and 'wellbeing' appeared altogether within the same paragraphs. In the first place, it was mentioned that the quality of life of all people "*depends, among other economic, social, environmental and cultural factors, on the physical conditions and spatial characteristics*" (Habitat II, 1996, Chapter II, p.19, para. 30) of the settlements. Furthermore, liveability was linked to the city layout and to aesthetics, to land-use, to population and building densities, to transportation and access to goods, to services and amenities. On the other hand, liveability was conceptualized in relation to spatial, social and environmental characteristics that *"uniquely contribute to people's sense of personal and collective well-being and to their sense of satisfaction in being the residents of that particular settlement"* (Habitat II, 1996, Chapter IV, p. 69, para 135).

Finally, when theorizing wellbeing, there was a stronger focus placed on the individual; when theorizing the quality of life, the stronger focus was placed on an entire population. Yet, liveability has been used with reference to either individuals or populations (see for instance de Chazal, 2010; Ma, 2007).

2.3.3 Liveability and the human needs

Concepts of sustainability, quality of life, wellbeing and liveability have often been linked to the human needs (Svanström, 2018). For instance, the nine ontological needs[17] developed by Max-Neef, Elizalde & Hopehayn (1989:1991) considered constant and simultaneous for all human cultures, across different historical times, have been used to support planning for sustainability (see for instance Castell, 2010, Svanström, 2018).

However, considering the quest for exploration and for the development of the human being, perhaps it is still the pyramid of human needs put forward by Maslow (1943) that can be better linked to the quest for liveability. Maslow (1943) hierarchically arranged the human needs, with the needs for survival and for safety at the base of the pyramid, followed by the psychological needs of love and belonging, by the needs for esteem, topped with the need for self-actualization or self-transcendence. The pyramid of human needs (Maslow, 1943) is reflecting the stages of growth in humans, which could also reflect the stages of advancement that liveable settlements should respond to.

2.3.4 Objective and subjective factors of liveability

Many researchers echoed the importance of subjective-objective factors when conceptualizing liveability (Evans, 2002; Saitluanga, 2014; van Kamp et al., 2003). However, the multitude of subjective-objective factors is also adding to the difficulty encountered when attempting to define and measure this concept. Van Kamp et al. (2003) termed the objective factors as desires related to the physical environment (food, water, shelter) and the subjective factors as desires related to personal and community development (recreation, leisure, social networks). Furthermore, Throsby (2005, quoted in Leby & Hashim, 2010) categorized the liveability factors into tangible (infrastructure, public space, air and water quality, education, health, sanitation, disposal) and intangible factors (sense of place, local activity, well established social network).

Pacione (2003a, who considered the quality of life and liveability as corresponding concepts), described the objective factors as those assessing the

[17] The human needs identified by Max-Neef et al. (1989:1991) are: subsistence, protection, affection, understanding, participation, leisure, creation, identity and freedom.

environments within which people live and work, dealing with health, crime, education, leisure facilities and housing. In Pacione's (2003a) view, the subjective factors describe the ways in which people perceive and evaluate the conditions around them.

Furthermore, Lennard & Lennard (1995) and Douglass, Ho & Ooi (2007) implied three levels when categorizing the liveability factors: the environmental quality; the individual well-being; and amenities (Lennard & Lennard, 1995) or 'lifeworld' elements (referring to material components of liveability, including personal security, Douglass et al., 2007). This categorization is still based on objective and subjective factors of liveability, but is treating the environment as a separate entity.

2.4 Liveability in the professional views of different actors, at different levels of analysis

In literature, there have been identified three different categories of actors interested in liveability issues in human settlements: researchers and scholars from the academia; governments, intergovernmental organizations, local and municipal administrations from the politic-governmental world; as well as individual practitioners, organizations of architects and planners, developers, non-governmental organizations (NGOs). Furthermore, in urban planning, discussions regarding liveability have been conducted at different levels of analysis: primarily at the level of the city (but also at other territorial levels concerning states, regions, as well as inter-governmental levels); and at the level of communities, neighbourhoods and streets (sometimes with overlapped objectives).

2.4.1 Dimensions of liveability in cities, from an academic, political or practical perspective

Throughout literature, academics and researchers considered different dimensions when assessing liveability, as seen in Appendix A1, Table 1 and Table 2. Preponderantly on the European and North American continents, researchers emphasized especially the dimensions of the physical environment (Kearns et al., 2000, Smith, 1973, quoted in Saitluanga, 2014; Wheeler, 2001), the housing conditions (Kearns et al., 2000, quoted in Saitluanga, 2014; Wheeler, 2001), and the social dimension (Smith, 1973, quoted in Saitluanga, 2014; Wheeler, 2001; Holt-

Jensen, 2001). Other common liveability dimensions implied were: health (Douglass et al., 2007; Kearns et al., 2000, Smith, 1973, quoted in Saitluanga, 2014), education (Kearns et al., 2000, Smith, 1973, quoted in Saitluanga, 2014), accessibility (Balsas, 2004; Mackett et al., 2008, quoted in Maghsoodi Tilaki et al., 2014), economic status (Smith, 1973; Kearns et al., 2000, quoted in Saitluanga, 2014).

In Asia-Pacific, the attributes linked to liveability in academic papers were especially related to the social progress, to economic development and to environmental quality (see Douglass, 2002a; Wang, Zhu & Zhang, 2011; Saitluanga, 2014). Highlighted were also the social innovation, the cooperation and the information exchange that can form the basis for a stronger local economy in Asian cities (Douglass, 2002b).

As Leby & Hashim (2010) argued, reinforcing the arguments of van Kamp et al. (2003) and Pacione (2003a), the chosen dimensions of liveability used by different academics and researchers can vary, depending on their discipline, culture and research objectives.

Furthermore, in politics, a current growing interest for liveability can be understood from the desire to rank and declare the most liveable city, region or country in the world, with the aim to attract more economic benefits for the respective territory. One illustrative example is that of Singapore where the Minister Mentor Lee Kuan Yew was eager to have the city proclaimed as the most liveable in the world, being aware of the economic benefits this could bring (Lennard, n.d.). Moreover, in the political world, ‘liveable’ is often paired with key concepts such as ‘healthy’, and ‘green’, to express political aspirations and slogans. In addition, government officials and the bigger public often see liveability as an index for comparison between cities, regions and countries, as a barometer (denomination initially used by Smith et al. 2007, quoted in Gallent & Wong, 2009) to measure the city competitiveness. Moreover, most usually emphasized have been the job opportunities, the efficient transport system and the good urban financial system in cities (Pacione, 2003a), resulting in having liveability often used as synonym to reaching economic opportunities, business potential, and intercity competition (Douglass, 2002a). The competitive liveability indices are also used to benchmark the impact of government policies and their effectiveness in improving the conditions in cities (Institute for Competitiveness, 2010). Yet, using liveability only

as an instrument to measure the city competitiveness, might be, as Douglass (2002a) emphasized, detrimental to the long-term development of the city.

In what concerns practitioners (architects and urban designers), when concerned with liveability matters, they often link it to transportation strategies and to urban planning issues in cities (see UDC 1, 2000:2007; UDC 2, 2007; ULI Singapore, 2013). Practicing agencies, alliances and organizations, in their studies on liveability (often used as synonym to 'quality of life' and 'wellbeing'), additionally attracted attention on the 'inextricable link' between the environment and the urban economy (see for instance Cities Alliance, ICLEI, UNEP, 2007, p.45).

Thus, attempts to measure liveability at a territorial level of analysis (in cities, especially) have been usually carried out through rankings (Okulicz-Kozaryn, 2015). Various organizations and alliances annually rank the world's most liveable cities based on surveys meant to capture the conditions of living (see the Economist Intelligence Unit's "Global Liveability Ranking" and "Global Liveability Report 2017"; Mercer's "Quality of Living Reports", "Quality of Living Ranking", 2018; Monocle's "Quality of Life Survey", 2017). These organizations and alliances established their own varying indicators, on domains such as employment, education, natural environment, cultural environment, infrastructure, and healthcare. Nevertheless, the results are not consistent with each other. In fact, the measurement culture of the most liveable city, country, or region reflects a frivolous way of judgement. Although it makes benchmarking easier especially from the point of view of multinational companies (Lennard, n.d.), the debate is turning away from the actual improvement of liveability, towards marketing a territory.

Across the world, several other metrics of progress have been put forward by intergovernmental and international agencies, aiming to integrate multiple perspectives and to capture the 'bigger picture' of human habitation (Svanström, 2018). While some metrics are centred on human development[18], and others are centred on the capacity of the planet in relation to human habitation[19], it is still uncertain what are the most appropriate indicators to use in order to capture the development and the human habitation impact (Svanström, 2018). Nevertheless, in

[18] Metrics centred on human development include: the UN Human Development Index (HDI) and its variations (see Svanström, 2018), the World Happiness Report (see Helliwell, Layard & Sachs, 2018), the Subjective Well-Being index (SWB, see Diener, 2000), etc.

[19] Metrics focused on the capacity of the planet in relation to human habitation (see Svanström, 2018) include: the Ecological Footprint, Planetary Boundaries, the Millennium Ecosystem Assessment (MEA), the Sustainable Development Goals (SDGs), etc.

the end, the main dimensions that connect human habitation and liveability echo to some extent the three main points underlined by the World Bank (1996) in the Livability Agenda for the 21st Century: the provision of basic services, the cleaner environment including water, air, soil, and cities, and the financial possibilities for people in cities.

2.4.2 Liveability at the level of communities and neighbourhoods, in the wide literature

Across the world, liveability has also been discussed in relation to communities[20] and neighbourhoods[21]. For instance, Huang (2008) argued that civil society can determine political innovation for liveability in communities, emphasizing that the link between economic prosperity and liveability can be established most conveniently at the community level.

However, similar to liveability in cities, Kaal (2011, quoted in Van der Pas et al., 2015) argued that there is no consensus between academics in what concerns the essential conditions for a liveable community or neighbourhood. What is more, Leby & Hashim (2010) concluded in their literature review that suitable for studying liveability in neighbourhoods were the functional, the physical, the social and safety dimensions, reflecting the dimensions implied at the city level (see section 2.4.1). Nevertheless, the chosen liveability attributes at the level of neighbourhoods and communities tend to be more specific. The social dimension, for instance, is expressed at the level of communities as social interaction (Clayden, Mckoy & Wild, 2007), social life (Jacobs, 1961:1993), sense of community (Balsas, 2004), community life (Vergunst, 2003) or place-making (Huang, 2008). For the dimension of the physical environment, at the level of communities and neighbourhoods there are implied the physical location (Vergunst, 2003), the built environment (Maghsoodi Tilaki et al., 2014), the aesthetics (Holt-Jensen, 2001). The functional dimension implies recommendations for mixed-use (Jacobs, 1961:1993; Wheeler, 2001:2013). Additionally, the economic dimension in neighbourhoods has been emphasized through the attributes of viability and affordability (see Jacobs, 1961;

[20] In this study, a community has the meaning of a small social unit in a geographical area, in which people are connected by durable relations extended beyond family, important to their social identity, as defined by James (2012).

[21] In this study, a neighbourhood has the meaning of a spatial unit where face-to-face interaction can occur, where residents seek to realize common values and maintain social control, as defined by Schuck & Rosenbaum (2006).

Balsas, 2004). Furthermore, in a considerable amount of scholarship on liveable communities and neighbourhoods the safety attribute has been highlighted (see Balsas, 2004; Clayden et al., 2007; Jacobs, 1961:1993; Leby & Hashim, 2010; Maghsoodi Tilaki et al., 2014), related to public safety but also to safety from traffic. Moreover (adding upon Appleyard's, 1981, work), in the Urban Design Manifesto of Allan Jacobs and Donald Appleyard (1987), the concept of liveability in urban areas appeared as a life goal aiming to respond to people's wishes for a living environment similar to a "*sanctuary*" (Jacobs & Appleyard, 1987, p.115).

In the political discourse, the concept of liveability at the communities level appeared first in the Sustainable Communities Plan in the United Kingdom (Office of the Deputy Prime Minister, ODPM, 2003, quoted in Gallent & Wong, 2009). Liveability was considered a prime responsibility of the local authorities, seen as determining the quality of the local environments (ODPM, 2003). Moreover, in Habitat II (UN, 1996), it was specified that the process of design, management and maintenance of human settlements should be guided by the community needs of people and by their aspirations for more liveable neighbourhoods. However, at the level of communities or neighbourhoods, political representatives still use the 'liveability' concept as a slogan, although more visible and pragmatic results are required for the achievements to be recognized. Moreover, as Ho & Douglass (2008) advocated for Asian-Pacific countries, linking liveability to place marketing (as the political representatives tend to do) is not equivalent to place making. While 'place marketing' concerns improving the urban image as a way to secure economic advantages, or to attract tourists, 'place-making' is about giving identity, meaning and collective memory to specific locations (Ho & Douglass, 2008).

Furthermore, similar to the city level, some practitioners see liveability in communities as influenced by a sum of factors: by the built and natural environment, by the economic prosperity, by the social stability and equity, by the educational opportunity, by cultural, entertainment and recreation possibilities ("What is livability", Partners for Livable Communities, n.d.; "The AIA's 10 Principles of Livable Communities", American Institute of Architects (AIA), n.d). Other practitioners directly link liveability in neighbourhoods to affordable transportation, employment and housing options ("Healthy and Livable Communities", American Society of Landscape Architects (ASLA), n.d.), resulting into best practices awards,

that do not present an exhaustive understanding of liveability and that are often biased.

2.5 Liveability in Chinese settlements

2.5.1 Background of the liveability research in China

Scholars in China (Wu, L.Y., 2010; Yuan, 2005; Wang, Zhu & Zhang, 2011; Liu & Wang, 2013) associate the concept of liveability with the science of human settlements (which has been initially theorized by Doxiadis, 1970). Moreover, some authors consider that the research and thinking on liveability in China has a long history, since writings on settlements spread all the way from the traditional Chinese philosophies to the modern city today (Liu & Wang, 2013). In traditional Chinese philosophies (Daoism, Confucianism), the harmony between the cosmos and the human being, the inner peace have been sought (see for instance Dutton, 1998; Li, Y., 1998). The concept of harmony concerned families, interpersonal relationships but also the government (Chan, 2010). Furthermore, this traditional philosophical influence has also been reflected in the organization of human settlements, through applied systems of knowledge (such as Feng Shui, 风水). Moreover, with consideration for the traditional Chinese philosophies, an important moment for liveability in China was in 1996, when Wu Liangyong published a compilation of human settlements sciences based on many years of reflection and thinking (Liu & Wang, 2013). Inspired also by the principles advanced by Doxiadis (1970), Wu Liangyong (2010) emphasized that an ideal environment can be obtained through the optimum combination of natural and artificial elements (Chen & Liu, 2015).

Yet, other authors considered that modern discussions on human settlements, on the quality of living, and on the improvement of urban areas in China have been overall restarted after the 1990s (Yan, 2005; Zhao, 2011). In this regard, a stimulating event for the discussions on the liveable environment in China was considered the forum sponsored by the State Natural Sciences Foundation in 1995, almost 20 years after the first UN conference Habitat I (1976) as Yuan (2005) asserted. For this reason, some academic researchers still consider that China is at the initial stage with its theories, practice, and advancements on liveability in cities (Li, 2001, quoted in Yuan, 2005).

Furthermore, taking account of the international discourse of liveability, Chinese scholars are reinforcing the fact that understandings and explanations of the liveable concept vary greatly (Zhao, 2007; Liu & Wang, 2013). Yet, Chinese researchers present consistency when emphasizing the human-oriented and harmonious characteristic of a liveable city (Liu & Wang, 2013; Wang, Zhu & Zhang, 2011; Yuan, 2005; Zhao, 2011; Zhang W., 2016). The human-oriented characteristic, reflected through a humanized environment, refers to the convenience of using the facilities and the urban space in the writings of Wang, Zhu & Zhang (2011) and to having a pleasant natural and cultural environment that allows further development in the opinion of Zhang Wenzhong (quoted in Liu & Wang, 2013). The 'harmonious society' has been reintroduced as a quest by president Hu Jintao and the National Congress in 2002, with the aim to achieve social stability, especially against the background of the environmental disparities induced by the rapid economic development (Chan, 2010; Yuan, 2005). On a similar note, Wu Liangyong (2010) reemphasized the goals of a harmonious society, with everyone having a place to live in, and houses suitable for their environment. Ma (2007) similarly emphasized the harmonious characteristic in the context of a balanced relationship between the human needs and the city, while Yuan (2005) included in the understanding of the harmonious characteristics the facilitated exchanges between people.

Moreover, Ma (2007) emphasized that the 'liveable city' should not be seen as a fixed, final goal. Similarly, authors Liu & Wang (2013) argued that although the construction of a liveable city should keep pace with the passing times, it should be regarded as a long-lasting pursuit. Furthermore, Ma (2007) framed another important theory, stating that the liveable city should be built in close accordance with the local existing conditions. In the view of Ma (2007), government officials and urban planners should not strongly reinforce their views, but they should provide more options for people to choose their preferred way of living, identifying liveability as dependent on the residents' satisfaction. A similar understanding of liveability revealed Zhang Wenzhong (2016) who argued that liveability is closely related to the wellbeing of the residents.

2.5.2 Liveability on the Chinese political agenda

In the recent years, liveability has been a preoccupation for the Chinese political agenda. Since the 1980s, the Chinese government and related institutions

have discussed aspects of urban development under different ‘models’, including the ‘garden city’, the ‘eco-city’, the ‘healthy city’, as well as the ‘liveable city’ (Zhao, 2011). The set goal was to ensure and to promote a healthy and rapid development during the urbanization process (Zhao, 2011), and thus the liveable city is currently considered as a primary goal in urbanizing China (Wang, Zhu & Zhang, 2011).

From the initial sponsored forum on liveable cities in 1995, a city agenda concerned with liveability has been promoted through several other national-level happenings (Yuan, 2005, Zhao, 2011). These included awards on liveable settlements (in 1997, in 2001), initiated by governmental institutions, whose winning cities become models for other developing Chinese cities (Zhao, 2011). The first Chinese city to adopt the liveability objectives in its ten-year plan was Beijing, in 2005 (Liu & Wang, 2013; Yuan, 2005; Zhao, 2011). Since 2005, once the ‘liveability model’ started to be implemented by the Ministry of Housing and Urban-Rural Development (MOHURD), the liveable city became an important part in many urban working sessions at the national level (Zhao, 2011). Guangzhou was the second city to adopt liveability as a development target in China and included three major concepts in its plans: the harmonious relations between man and nature, the well-developed system of public services, and the high quality urban environment (Lu et al., 2010). However, as Yuan (2005) argued, there is no city in China that can be fully termed as ‘liveable city’.

In this scenario, in order to achieve more liveable Chinese cities, the Asian Development Bank attracted attention over the natural environment (Zhang & Crooks, Asian Development Bank, 2012), while the United Nations Development Programme (UNDP) started promoting a low-carbon, eco-friendly lifestyle, trying to respond to the environmental challenges through a green consumption campaign (UNDP China, 2013).

Furthermore, China followed several other liveability standards defined at the state level. The most notable is the Livable City Assessment Standard (2007) released by MOHURD (Wang, Zhu & Zhang, 2011), which uses six assessment criteria: the social civilization, the economic prosperity, the ‘beautiful environment’, the available resources, the convenience in accessing facilities, and the public security (Zhao, 2011). The marking system of the liveability standard is based on a maximum of 100 points, while the Livable City task group is formed of members of

the Chinese Society of Urban Studies (CSUS), as Zhao (2011) informed. However, standards of liveability in China can be characterised as general and broad.

2.5.3 Liveability in the Chinese academic discourse

Chinese researchers prefer to adopt a broader perspective of liveability, compared to the narrower way of defining liveability adopted by scholars in the Western countries, argued Wang, Zhu & Zhang (2011) and Liu & Wang (2013). The narrow perspective of liveability adopted by international, non-Chinese scholars often reflects the good living conditions in cities, inclined towards the angle of ecological environment, argued further Wang, Zhu & Zhang (2011). However, the broader liveability perspective adopted in China rather concerns the balance between the natural and the artificial environment, a prosperous economic development, and a stable and harmonious society (Yuan, 2005; Wang, Zhu & Zhang, 2011; Liu & Wang, 2013).

Wang, Zhu & Zhang (2011) related the narrow and the broad perspectives on liveability to the various stages of development in cities. The authors explained that in countries that already have a good economic foundation with public facilities and proper infrastructure, it is understandable the narrow focus of liveability. In China, however, the authors considered that the economic conditions cannot be neglected. Therefore, in their model of a liveable city, Wang, Zhu & Zhang (2011) considered the economy as setting the fundamental conditions for liveability, assuring employment opportunities and a decent life. On the economic foundation, the authors (Wang, Zhu & Zhang, 2011) considered the social culture, the ecology and the governance as three other sustaining pillars of liveability, towards which the resources can be redirected once the economy is stable and strong.

Nevertheless, China's development started to slowly shift from pursuing rapid economic growth to focusing on people's livelihoods (Pan, 2016; Wang, Zhu & Zhang, 2011). Moreover, the social exchanges (Yuan, 2005) and the role of the social culture have been highlighted as the source of vitality and the 'soul' of a liveable city (Wang, Zhu & Zhang, 2011). Furthermore, China has recently adopted a declared target of building more environmentally-friendly cities (Zhao, 2011). At last, Wang, Zhu & Zhang, (2011) and Liu & Wang (2013) argued that the goal of constructing a liveable city can be realized only through the coordinated

development of the four important dimensions of liveability for Chinese cities: the economy, the social culture, the environment, and the governance.

Moreover, besides broadness and the focus placed on the economic development, another obvious difference in the way liveability is conceptualized in China compared to the Western discourse, consists in the importance given to governance. The role of the governance in China is seen as a determining factor for liveability, that can coordinate the harmonious and even development of the other dimensions (Yuan, 2005).

Nevertheless, in the context of China, similar to other global contexts, different authors named different aspects as being of primary importance for liveability. This partly revealed that, as Yuan (2005) argued, the liveability indicators can be interwoven and mutually reinforcing. Overall, some of the most recurring indicators refer to transportation, infrastructure, education, health and culture, service facilities, housing and living conditions (Chinese Academy of Social Sciences (CASS) quoted in Zhao for Shenzhen Daily, 2014; Liu & Wang, 2012; Liu & Wang, 2013; Wang, Zhu & Zhang, 2011; Xinhua, 2014; Yuan, 2005). All-embracing, Ma (2007) considered, on one side, that liveability concerns the quality of physical, social and psychological environments that a city can assure, and on the other side, that liveability implies the personal needs and values of a human being, in this manner reflecting both objective and subjective dimensions of liveability.

Furthermore, other academics urge for finding a unitary way of defining the concept of liveability (Liu & Wang, 2012; Liu & Wang, 2013), for turning the abstract concept into a clear objective (Yuan, 2005) and for employing new scientific methods in liveability studies, with more practical results (Liu & Wang, 2013). Additionally, there has been highlighted the consideration of the Chinese characteristics in correlation to the current development and laws (Liu & Wang, 2013), but also the fact that for different regions, under different historical conditions, there should be applied different standards of liveability (Yuan, 2005).

Furthermore, Wang, Zhu & Zhang (2011) identified two paradoxes in the liveable cities thinking. One paradox was first identified between liveability and economic development in large cities all around the world. To reflect the circumstances of this paradox, Wang, Zhu & Zhang (2011) highlighted that, when thinking of any of the world's largest and most powerful cities with strong economies, their living conditions and the natural environments are less pleasant

compared to smaller-sized cities. A second paradox identified by Wang, Zhu & Zhang (2011) concerns mainly the Chinese context and is reflected in the fact that, what the larger public considers as a 'liveable city' differs considerably from the opinions of local experts. In this regard, in China, people favour the large, economically-powerful cities for the employment opportunities and for the better financial possibilities, while the standards set by experts recently favoured the medium and small-scale cities, usually for the better natural environment and better living conditions (Wang, Zhu & Zhang, 2011). Illustrative of the second paradox were the liveable cities rankings realized in 2005 and 2006: in 2005, the 'Top Ten Livable Cities in China' (released by China Institute of City Competitiveness, quoted in Wang, Zhu & Zhang, 2011), based on standards formulated by experts, was composed of only medium and small-sized cities (Wang, Zhu & Zhang, 2011); in 2006, in the top ten liveable Chinese cities based on internet voting, half of the cities had over 10 million people (Wang, Zhu & Zhang, 2011).

2.5.4 Liveability in the views of practitioners in China

In China, while several masterplanning and design offices adopt the 'liveable' attribute in their proposals, the project objectives are often dictated by the government (Miao, 2014). Most of the projects and plans are not made accessible to the public, and, furthermore, the 'liveable' attribute is adopted at a superficial level in design projects, not carrying a deep understanding and meaning beyond the immediate practicality of the design.

Nevertheless, one of the most important practicing agencies concerned with the liveable city concept in China is the polling agency Horizon Research Consultancy Group. Horizon Consultancy established their own liveability standards, including three criteria: the housing space, the community space and the public space (Wang, Zhu & Zhang, 2011). The published list with the rankings of the most liveable city in China realized by Horizon Group Survey Company varied greatly from year to year[22]. However, including in their surveys both residents and investors, the Horizon Group concluded with findings that the major problems in Chinese cities were: the housing shortage, the difficult job market, the poor wastewater and garbage treatment, the pollution (Fu for China Daily, 2006). The Horizon Group

[22] In the liveability rankings realized by the Horizon Group, in 2005, topping the list was Shanghai, while in the years of 2006 and 2007 the medium-sized cities were higher ranked (Yuan, 2005; Information for the Deciders, 2007, quoted in Wang, Zhu & Zhang, 2011).

representatives also noticed a different degree of satisfaction in cities between the social groups: concerning housing and employment, the agency mentioned that investors and high-income groups showed a high degree of satisfaction, compared to the low-income groups which were generally dissatisfied (Fu for China Daily, 2006).

2.5.5 Overview of approaches on liveable communities in China

With the predominantly 'broad perspective' of liveability adopted in China, there are limited studies that contested the meaning of liveability in communities or neighbourhoods. These are either directly linked to liveability at the level of the city (see Wang, Zhu & Zhang, 2011), or to liveable streets, since 'neighbourhoods' in China often coincide to the residential compounds developed within a block (see Qin et al., 2003). Few other studies considered liveability at the level of larger residential areas (see for instance Du, Fu & Fang, 2012).

Overall, besides the political thinking on the property management model (Liu, Dijst & Geertman, 2014) in relation to housing development of neighbourhoods in China, many practicing architects and planners make reference mainly to design codes when addressing liveability in communities. However, as Wang, Kee & Gao (2014) argued, the statistical ratio of people per unit is not the most important factor in determining how people perceive and use the space, especially in high-density Chinese communities; many times, the way the space is designed and the facilities in the community matter more for the residents (Donald, 2015; Wang, Zhang, An, Jing & Wang, 2013).

Additionally, in residential communities, some Chinese scholars also highlighted the importance of local culture and of historical context, arguing for the correlation of design interventions to the daily life of residents (Cha, Jian & Li, 2014; Ma, 2007; Zhao, 2007). Another notable recommendation was that of Du, Fu & Fang (2012) for planning innovations that allow the redevelopment of poor residential communities to low-carbon developments.

2.6 Liveability at the street level

2.6.1 Overview of the role of the street, across the world

2.6.1.1 Defining the street

A street is "*a public thoroughfare, usually paved, including all area within the right-of-way, such as sidewalks*" (McGraw-Hill Dictionary of Architecture and

Construction, 2003), on which people are living, working (Collins English Dictionary, n.d.) and circulating. The origin of the word 'street' came from Latin, where 'via strata' had the meaning of 'paved road' (Online Etymology Dictionary). The word 'street' is still sometimes informally used as a synonym for 'road', however the distinction must be made that streets facilitate public interaction, while the main function of a road is transportation ("Street vs. Road", English Vocabulary). Urban streets are "*typically lined with buildings and public spaces"* ("Manual for Streets", 2007, p.15), places where people *"engage in the diverse array of social and recreational activities"* (Dumbaugh & Gattis, 2005, p.283).

Besides the main roles of the streets as places for social interaction and as corridors for movement, streets are also important concerning: access; parking; drainage, utilities, and street lighting (Commission for Architecture and the Built Environment (CABE), Office of the Deputy Prime Minister (ODPM), 2002, quoted in the "Manual for Streets", 2007).

2.6.1.2 The role of streets in cities

Ever since the ancient times, in Europe, streets have been regarded as centres of commerce, of socialization and of cultural exchange (Engwicht,1999). Streets have been recognized as places of primary importance for successful cities, bringing together people of different social backgrounds, giving people opportunities to meet, to gather, to see one another, to interact (Gehl, 1987:2011; Jacobs, 1961:1994; Appleyard, 1981; Montgomery, 1998). As Montgomery underlined, "*it is in streets—as multipurpose spaces—that all the ingredients of city life are combined: public contact, public social life, people-watching, promenading, transacting, natural surveillance and culture*" (Montgomery, 1998, pp. 108-109). Furthermore, the presence of pedestrians on streets has been identified as an essential element of urban life, of economic and cultural exchanges, an element of animation and of security on the street (Jacobs, 1961:1993; Montgomery, 1998; Negulescu, 2011).

Several theories have been focused on defining an ideal (or successful) street (see for instance Sitte, 1889:1992; Jacobs, J., 1961:1993; Jacobs, A., 1995), recognizing the street as a centre of attention in urban developments.

However, a main identified problem with the street in contemporary times has been considered equivalent to the accommodation of too much traffic (see for instance Appleyard 1980; Appleyard, 1981; Dumbaugh, 2005). As Appleyard

described it, the street can be seen as a scene of conflict "*between living and access, between residents and traveller, between street life and the threat of death*" (Appleyard, 1981, p. 1). Nonetheless, Kevin Lynch (1960) exposed how the economic and cultural levels in a city depend in a certain proportion on the capacity of its circulation system. This is reflected in the fact that more and more often travels (although streamlined in time) are made for meetings, for economic, symbolic or emotional transactions (Popescu et al., 2003). Overall, while the street has remained a constant presence in people's lives, in its functionality as main connector of places (circulation function), the rehabilitation of the ambience of the street and the restated importance of the social role of the street (social function) are considered today as key-elements of urban development and growth especially in Western cities (Negulescu, 2011).

2.6.2 Problematics concerning liveable streets in the wide literature

Jane Jacobs (1961:1993) emphasized the critical importance of sidewalks, of street life, of active retail spaces within dense residential areas, and "*is credited with articulating the features of livable urban space*" (Hankins & Powers 2009, p. 848). Emphasizing diversity, Jacobs (1961:1993) highlighted how the dynamics of street life, termed as 'ballet', are not getting repeated among varying places, being, instead, "*always replete with new improvisations*" (1961:1993, p.110).

Later on, Appleyard and Lintell (1972) demonstrated that liveable streets should encourage social interaction, however, they considered that possibilities for social interaction were directly dependent on having lower volumes of motorized traffic. In this regard, the main argument of Appleyard and Lintell (1972) was that once the traffic volume is increasing, the social interaction is decreasing. Appleyard further argued for streets where people can freely "*sit, converse and play*" (Appleyard, 1981, p. 107), without traffic discomfort. More than this, Appleyard (1981) mentioned of a possible adaptation to traffic from where he concluded the people's tolerance for living on heavy traffic streets. Restating the conclusions of Appleyard (1981), other researchers emphasized the idea of diminishing the negative effects of cars for achieving liveable streets (see Bosselmann, Macdonald & Kronemeyer, 1999; Appleyard, B. & Cox, 2006).

Overall, in Western countries, there is currently placed significant emphasis on walkability, on having pedestrian-friendly street environments (Gehl, 2010;

Speck, 2012), with traffic-calming elements (Appleyard D., 1981; Appleyard B., & Cox, 2006; Gehl, 2010; Speck 2012). To address some of these principles, in Western contexts, the concept of 'shared streets'[23] has been put forth. On a 'shared street', cars are allowed but the traffic speed is slowed down up to 15km/h, using both physical measures and signage (Appleyard, B., 2006). 'Shared streets', and other similar concepts[24] developed in Europe, have been designed as integral extensions of communities, on which drivers "*are made to feel it is natural to drive slowly"* (Appleyard, B. & Cox, L., 2006, p.32). Furthermore, aiming to provide a better accessibility for pedestrians but also to enhance the intensity of shopping along commercial streets, there have been introduced concepts such as 'pedestrian zones' and 'car-free zones'. However, side effects included the increased traffic in the surrounding areas, as the car traffic was deviated rather than substituted; additionally, due to forbidding cars, the accessibility to commercial spaces on streets was reduced and businesses faced a decrease in the number of customers, in several cases (Chiquetto, 1997). Moreover, in the USA, another significant response to automobilism was through the introduced concept of 'complete streets'. Started in the 1970s, the aim of 'complete streets' was to safely and conveniently accommodate, altogether, pedestrians, cyclists, public transport users, as well as automobile users within each street (McCann, 2013).

Besides reducing automobilism, the landscaping and cultural meaning of the street have been much considered in the West in the last 30-40 years. In this regard, it has been demonstrated that street trees and street landscaping had the role of protection from noise and from pollution, as well as an aesthetic role, positively influencing the ambiance of urban streets (Bosselmann et al., 1999; Dumbaugh, 2005; Jacobs, A., 1995; Jacobs et al., 2002; NARC, n.d.; Negulescu, 2011; Whyte, 1980:2016).

Concerning the role of streets as public spaces, Carmona & Tiesdell (2007) argued that successful streets should support and facilitate the activities of people. However, further threats have been identified to the public space of the street,

[23] The concept of 'shared streets'(*woonerf*) has been introduced in The Netherlands in the 1960s-1970s. It can be regarded as a reinterpretation of the Radburn concept of dead ends (experimented in USA) which resulted in safety concerns for people on segregated footpaths that did not allow vehicular movement (Clayden, McKoy & Wild, 2007). The *woonerf* is translated literally as 'residential yard' (Appleyard, B. & Cox, 2006).

[24] The 'shared streets' have also been described as 'living streets', 'shared spaces', 'legible streets', 'naked streets', as well as implemented in a network as 'home zones' in the UK in the late 1990s (Appleyard, B. & Cox, 2006).

consisting in privatization and gentrification (see Minton, 2006; Stevens, 2009). In this regard, threatening are the too strict rules in using the street space, along with the lack of flexibility for unpredictable activities (Montgomery, 1998; Stevens, 2009). These threats are often derived from recent policy proposals targeting public spaces that look more attractive, aiming to show prosperity and sophistication (Flock, 2014; Stevens, 2009). In this regard, scholars argued that 'liveability' in public spaces is related to 'possibility' and not to restrictions (Stevens, 2009), or to imposing too much control in urban spaces (Gallent & Wong, 2009). To counteract these problematics, scholars suggested to make the public space more open, to engage with complexity, and to allow different uses and different categories of users (Gallent & Wong, 2009; Stevens, 2009). At the same time, Minton (2006) identified the danger of saturating the public space with media content, in which everything becomes virtual and nothing is real.

2.6.3 Streets in China

2.6.3.1 Traditional characteristics of Chinese streets

In the warded Imperial cities in China, social exchanges outside the designated marketplaces were not encouraged, to assure the protection of the sovereign power (Gaubatz, 2008; Xie, 2012). The unorganized commercial activity was regarded as a source of noise, and as a possible source of fires and epidemics in populated areas (Xie, 2012). Every urban activity took place inside the wards[25] and markets of the city, and while street-life almost didn't exist (Gaubatz, 2008), the very wide-planned streets were reserved for grand political ceremonies (Xie, 2012). Only during the later time of the mid-Tang Dynasty to the Song Dynasty[26], the commercial activities started to emerge in residential wards and the function of the street started to be slowly transformed from a political space to a commercial and communal space (Xie, 2012). Some profiles of the streets started to change from being vast, to having a narrow and domestic scale, and while the neighbourhoods became more mixed, with both living and business functions, urban diversity was generated (Xie, 2012).

[25] A 'ward' represents a walled residential block in ancient Chinese settlements.

[26] The successful Tang-Song period concerning street life in China was dated approximately between 800-1279 AD, according to Xie (2012).

In the late 19th century, in Shanghai particularly, mixed compounds of housing with family businesses were developed after the foreign settlement started making use of the city port, and the street became filled with shops and businesses under an organic form (Liang, 2008). However, although having an important function for the booming economy in the city, the street was still "*considered indecorous, dangerous, and morally inferior to walled domains*" (Liang, 2008, p.488). It can overall be considered that in ancient cities in China the courtyard and the street "*were antithetical spaces separated by walls*", with the courtyard representing the elite, and the street representing "*the amorphous and the vulgar*" (Liang, 2008, p. 491).

Associated with the street, the nature of the public space is 'slippery' in China - transgressing from street life that almost didn't exist during the Imperial time (Gaubatz, 2008), to more diversity in the use of the public space towards the end of the Imperial Era (Xie, 2012), to wide roads and grand public squares after 1949 (Gaubatz, P., 2008). Later on, the political domination over everyday life was reduced after the reform in 1978 (Flock, 2014), while the Chinese cities have been directed towards a new vision that followed international standards. In this manner, in the contemporary Chinese city, new types of public spaces appeared, including new urban plazas, western-style pedestrian streets, along with a later emphasis on environment, landscaping and new green spaces (Gaubatz, P. 2008). As Xie (2012) argued, the blur of the public and domestic space that allowed the exuberant life towards the end of the Imperial Era is contrasting the modern planning principles which create sharp divisions, leaving no flexible space for 'spontaneous' activities.

2.6.3.2 Contemporary streets in China and adjacent public spaces

Recently, in China, as Pan Yu (2012) criticized, the street design is done mainly for the purpose of carrying traffic, rather than for enhancing the role of public spaces that could encourage social interaction. Chinese cities have invested significant amounts of money in new roadway infrastructure (Cervero & Day, 2008; Pucher, Peng, Mittal, Zhu & Korattyswaroopam, 2007), and the urban policies are focused on promoting motorization to stimulate the economic development (Cheng et al., 2007; Hu, 2012; Pucher et al., 2007). Adding the reason of the growing middle and upper classes, car ownership in China has been rising in the past years, and the

possession of private vehicles almost doubled from 2009 to 2013, according to the National Bureau of Statistics (NBS, 2015) of China.

In terms of public transportation, most Chinese cities have invested heavily in rail projects, extended metro systems and doubled numbers of busses (Pucher et al., 2007; Bureau of Statistics of Shanghai, 2004). However, for the biggest cities of China, to further promote the public transport and to reduce automobilism, Wang, Zhu & Zhang (2011) recommended the increase in the convenience of transfer in stations.

Following a hierarchical road planning, in China there are local roads (collectors), minor arterial roads, major arterial roads and expressways, with widths ranging from 15m to 55m (Cheng et al., 2007). Although the largest space in the transversal profile of the road is reserved for cars, in contemporary street planning, there is space reserved for bikes as well as wide pavements for pedestrians, greenbelts and median greens (Cheng et al., 2007). Still, some professionals criticized that the investment is focusing mainly on urban arterials and motorways, ignoring the need to upgrade the local roads (Pucher et al., 2007).

Furthermore, Wang, Zhu & Zhang (2011) highlighted the need to shift part of the attention on constructing roadways towards creating open spaces and pedestrian paths in the city (Wang, Zhu & Zhang, 2011). Yet, in China, there are also contemporary cases of transforming community level streets into wide traffic arteries. Such is the case of Taihu Road in Hefei, which has been transformed from local street into secondary road, as Zhao (2007) described it. In the author's view (Zhao, 2007), this operation was considered successful for the improved traffic situation, for the promoted economic benefits on the street and for enhancing the image of the street through landscaping elements. Yet, this type of intervention does not value the social potential of the street, but it is rather a sign of place marketing, through actions meant to bring economic profits derived from improving the image of the street.

Following a similar trend, in Chinese megacities, more and more indoor pedestrian streets have been developed in recent years (Wei & Jiang, 2013), responding to the diversification of lifestyles, to the increase in the average income, to the more free time an individual has, which have all built a demand for more public spaces (Flock, 2014). However, the tendency is towards commercializing the public experience and towards turning the street into a shopping mall (Gaubatz,

2008), which fit well with the post Mao-ist policy of '*get rich quick'*, as Miao (2014) argued. In the meantime, the privatization, referring mainly to the 'stealing' of public space for private economic interests (Miao, 2011; Miao, 2014) and the gentrification pressures that are turning places with social value into profitable commercial spaces (Ho & Douglass, 2008; Miao, 2011) have been criticized, in the western literature, as a loss of the 'true' public space in cities (Gaubatz, 2008). However, in China, these are still regarded as instruments for raising the economic benefits, for attracting shoppers, visitors, consumers, and investors (Flock, 2014). Thus, in emerging Chinese cities, a uniform upgrading of the public space, with more incentives given to international brands and to high-end businesses has been identified (Miao, 2014).

Furthermore, as Flock (2014) argued, 'publicness' in China is reduced in quality and quantity. For example, even the access to some of the largest parks in cities is based on entrance fees or is completely restricted at certain hours[27]. In this manner, the 'true' public space that can be accessed and used freely by all people can rarely be found in China (Orum et al., 2009). Furthermore, the limited accessibility and the over-control of the public space under the Chinese political system, is often resulting in too impersonal and intimidating spaces (Miao, 2014).

On the other hand, Grant Donald (2015) and Orum et al. (2009) notified emerging forms of public spaces, a result of the main activities of the elderly in China, including dancing, practicing Taichi[28], practicing calligraphy, playing Mahjong[29], as well as singing in plazas, pavements, parks or at metro stations. However, as Friedmann (2007) highlighted, although in these instances street life might look as if it would be autonomous, it is still under the authority of the state in China. Furthermore, as Donald (2015) argued, these activities require hardscape areas and seating so that people can play, sing or dance. Therefore, simply respecting the rules from design codes and providing the required amount of open space per person is not enough for improving liveability (Donald, 2015). In this regard, Miao (2014) recommended that open spaces should be conceptualized as public rooms with plants. Additionally, Miao (2014) argued for the reintegration of the 'courtyard' and the 'wall' in urban design proposals, representing common elements in traditional Chinese settlements. According to Miao (2014), courtyards carry the

[27] An example of a large park where entrance fees are required is Century Park in Shanghai.
[28] Taichi is a Chinese Martial Art.
[29] Mahjong is a Chinese tile-based game.

meaning of main social places in the Chinese history (in contrast to the large plazas that replicate Western models), while the wall is part of the urban image appropriate for the Chinese context, considering the high densities of inhabitants. Furthermore, Miao (2014) criticized that the ignorance of traditional Chinese characteristics, and of research results in Chinese contexts, often leads to adopting inappropriate aesthetic concepts in open spaces and insensible designs of large urban centres. Similarly, Friedmann (2007) criticized the recent tendency in Chinese cities of getting filled with immense spaces, designed by famous architects, but that often ignore the local culture. Yet, people choose to live in areas where human ties and familiar landscapes give rise to sentiments of belonging to the place, argued Friedmann (2007). Xie (2012) additionally urged for an awareness of human scale and of the people's lifestyles that should be evoked in public spaces in China, despite the fact that these aspects are not directly measurable.

Furthermore, Zhao (2007) pleaded for the process of building liveable streets as a historical process, in the idea that socio-economic development and the human demand of materiality and spiritual meanings could change continuously. Moreover, exposing a more practical approach for liveable streets in China, Qin et al. (2003) named three important conclusions, extracted from their study in the Chinese context, partly in reflection with the experience of other Western countries: one of the authors' conclusions was that, although China's road system might be different from the road system in North America or Europe, the principle that traffic and living should not be in contradiction is still applicable; a second conclusion linked the human behaviour to the character of the street space, arguing that in China, if a street is not used by the people, it often represents the start of the area's decline; a third conclusion referred to the fact that when walking possibilities are interrupted by traffic, the street becomes a barrier (Qin et al., 2003). Overall, scholars Du et al. (2012) and Qin et al. (2003) urged for planning innovations to improve the existing situation on streets in China, emphasizing the need for collaboration between planning, design, government and developers, for a concentrated effort in achieving liveable streets.

2.7 Attributes of liveability at the level of the street

Most of the previous 'liveable streets' studies focused mainly on traffic issues in relation to social interaction on streets (see Appleyard, 1980; Hart & Parkhurst, 2011; Sanders, 2013; Sauter & Heuttenmoser, 2008). However, although not particularly using the 'liveable streets' term, other studies focusing on street life in relation to the physical environment of the street, which concerned 'safe', 'great', or 'lively' streets, have generated significant output (see for instance Clifton, Smith & Rodriguez, 2007; Jacobs, A., 1995; Jacobs, J., 1961:1993; Mehta, 2016).

Overall, it could be deducted that streets should be safe (Appleyard, 1981; Clayden et al., 2007; Clifton et al, 2007; Dumbaugh, 2005; Jacobs, 1961), should allow and attract social interaction (Appleyard, 1981; Bosselmann, 1999; Clayden et al., 2007; Gehl, 2010; Jacobs, 1961:1993; Sanders, 2013; Whyte, 1980:2016) and should convey a sense of place (Appleyard, B. & Cox, L., 2006; Clayden et al., 2007; Dumbaugh & Gattis, 2005; Ho & Douglass, 2008; Montgomery, 1998; Peattie, 1998); all of these resting on a built environment that offers a satisfactory living (see Gehl, 1987:2011; Hankins & Powers, 2009; Jacobs, J., 1961:1993; Montgomery, 1998). Furthermore, a built environment offering a satisfactory living has been informed by aspects concerning the physical characteristics of streets (see Bosselmann et al., 1999; Mahmoudi et al., 2014; Ewing and Clemente, 2013), concerning services and amenities, or the local economy (see Jacobs, J., 1961:1993; Mehta, 2016; Montgomery, 1998; Piracha, 2011).

In China, some of the specific attributes of the built environment that are as well reflected at the street level include the importance of an increased 'humanistic concern' and of a 'humanized environment' (see Cha et al., 2014, Feng, Ge & Chen, 2008; Kim, Shen & Bai, 2015). The 'humanistic concern' in relation to streets refers to the concern for the social structure of the place (see for instance Zhao, 2007), while the 'humanized environment' at the street level refers to convenience of access and connectivity, as well as to physical features that should meet the people's needs (see for instance Cha et al., 2014, Feng et al., 2008). Overall, in previous streets studies in China the focus has been placed primarily on circulation, secondarily on physical-perceptual aspects or on the business function of the street, and less on social aspects, often been considered unproblematic.

The street attributes highlighted by different scholars in reference to physical, traffic, functional and social characteristics at the street level are presented below.

2.7.1 Physical and morphological attributes of streets

Although in modern city planning, larger blocks and fewer streets in cities have been adopted to avoid overcrowded areas and to achieve greater spatial efficiency (Montgomery, 1998), it has been demonstrated that shorter blocks insure a more comfortable environment for pedestrians, offering more opportunities to turn corners on the street and therefore enhancing street life (see Jacobs, 1961:1993; Montgomery 1998).

In order to support pedestrian activities, appropriate pavement dimensions, street furniture, open spaces along the streets, and landscaping elements were recommended (see Appleyard, B. & Cox, L., 2006; Ewing & Clemente, 2013; Montgomery, 1998; Negulescu, 2011; Whyte, 1980:2016).

Furthermore, along the history, the overall image of the street, the street proportions and architectural styles of bordering buildings have also been given importance in relation to the pedestrian experience (Kostof, 1999:2012; Sitte, 1889:1992; Jacobs, A. 1995; Manual for Streets, 2007). Similarly, the role of other perceptual urban design qualities, such as the degree of enclosure, of transparency, of complexity, of coherence, legibility, linkage to the street, human scale and landmarks was highlighted by scholars (see for instance Appleyard, Lynch & Myer, 1964:1971; Clifton et al., 2007; Ewing and Clemente, 2013; Mahmoudi et al., 2014).

In China particularly, specific suggestions were given for: integrating both natural and artificially-paved public spaces (Donald, 2015), for an improved connectivity of open spaces (Qin et al., 2003) and for a closer consideration of the ecological environment of the street (Cha et al., 2014), with consideration for street trees and street greenery (Cha et al., 2014; Chen & Thwaites, 2016; Jacobs, A., 1995; Schmitz, 2016; Shanghai Street Design Guidelines, 2016). In terms of qualitative indicators, Chow (2014, 2016) highlighted the legibility of streets in traditional Chinese areas, Xie (2012) highlighted the human scale of traditional street environments, while Cha et al, 2014 highlighted the mix of various old and new buildings. In the prospect of the growing road widths in Chinese cities, the scale control, as well as narrower streets and more compact blocks have also been emphasized recently (Cha et al., 2014; Qin et al., 2003). Moreover, the Shanghai

Street Design Guidelines (2016) proposed new street outlines, proportions and dimensions; however, many of these reflected other design codes advanced in Western countries (see also section 1.5.1, page 10, Chapter 1).

2.7.2 Traffic attributes

Across the world, the negative effects of motorized traffic were emphasized in relation to increased traffic hazards, to noise and air pollution, but also to affecting the social and psychological perception of the street (Appleyard and Lintell, 1972; Appleyard, 1081; Hart, 2008; Hart & Parkhurst, 2011; Sauter & Heuttenmoser, 2008; Mahmoudi et al., 2014). Nevertheless, some revisited liveable streets studies added several other implications to the inversely-correlated relation between traffic and liveability as theorized by Appleyard and Lintell (1972): for instance, Bosselmann et al. (1999) concluded that boulevards are more liveable than other conventionally designed streets with lower traffic volumes, based on their historical significance and on the boulevard configuration; furthermore, Sanders et al. (2015) concluded, in the context of Vietnam, that the overview of a street can be subjective, while "*collective bonds seem[ed] stronger than barriers put up by traffic flows*" (Sanders et al., 2015, p. 557).

Overall, scholars argued for streets that accommodate different transport modes, slow traffic and multiple street users (Clifton et al., 2007; Gehl, 2010); such streets proved to be more liveable and safer, compared to overly widened roadways with single car-user access (car drivers, Dumbaugh, 2005). Nevertheless, Montgomery (1998) highlighted that along with implementing a public transport policy, an extremely heavy policy against automobiles should not be adopted, situations when needing to make some journeys by car will be encountered. Similarly, Gattis (in Dumbaugh & Gattis, 2005) highlighted that impeding travel on available corridors of mobility can adversely affect 'quality of life', by lowering mobility and accessibility. In the meantime, Kostof (1999:2012) reminded that some wider streets can have high representativeness (such as boulevards) and can be emblematic in their monumentality. In the end, many scholars argued (Cervero, 2009; Dumbaugh, 2005; Fischer, 2000; Gehl, 2010; Mateo-Babiano & Ieda, 2011; Montgomery, 1998), for a need to find balance between providing transportation options and community-building.

In the Chinese context, traffic control and walking-friendly environments, scale control (Cha et al., 2014; Du, Fu & Fang, 2012; Kim, Shen & Bai, 2015; Qin et al., 2003; Shanghai Street Design Guidelines, 2016; Zhao, 2007), and other principles suggested by Western researchers such as improved cycling system with continuous bike lanes (Shanghai Street Design Guidelines, 2016) have also been highlighted. Exposing a practical approach for liveable streets in China, in reflection with the experience of other Western countries, Qin et al. (2003) named important conclusions, including that: although China's road system might be different from the road system in North America or Europe, the principle that traffic and living should not be in contradiction is still applicable; a second conclusion was that if a Chinese street is not used by the people, it often represents the start of the area's decline; a third conclusion indicated streets become barriers when walking possibilities are interrupted.

2.7.3 Functional attributes of streets

Jane Jacobs (1961:1993) was one of the first scholars who emphasized the importance of the mix of uses on streets, consisting of both primary uses[30] (residential, office, commerce and services, etc.) and of a 'secondary diversity'[31] of uses that attracts human activities on a continuous basis. A 'secondary diversity' is usually generated by small-scale uses, such as cafés, art galleries, shops, places of entertainment (Montgomery, 1998), which are often regarded as amenities (Machado et al., 2013). Carmona and Tiesdell (2007) similarly emphasized that some land uses have very little relation to the people on the street, while others engage people. Furthermore, a high amount of facilities, amenities and transactions can generate more walking and a more diverse street life, argued scholars (Ho & Douglass, 2008; Montgomery, 1998).

In the Chinese context, the mixed-use (Cha et al., 2014, Qin et al., 2003), improving facilities and amenities (Yuan, 2005; Zhao, 2007) and increasing the amount of public space along the street (Kim, Shen & Bai, 2015; Qin et al., 2003; Zhao, 2007) have also been highlighted. Qin et al. (2003) particularly highlighted that mono-functional areas lack vitality compared to mixed-use areas, with this

[30] Primary land uses, as defined by Jacobs (1961:1993) and reinforced by Montgomery (1998) include mainly residences, offices, commerce, education, recreation, entertainment.

[31] The secondary diversity refers to services that grow in response to the primary uses (Jacobs, 1961:1993; Montgomery 1998).

argument explaining why old city streets are more interesting than contemporary planned ones. However, as den Hartog (2016) argued, older streets in Chinese contexts, often under poor maintenance, are regarded by residents as underdeveloped.

Another street attribute emphasized by Jane Jacobs (1961:1993), and confirmed by other scholars (Mehta & Bosson, 2018; Neal, 2010; Piracha, 2011; Carmona & Tiesdell, 2007) concerned economic activities, considered to strengthen community and street life. Furthermore, William H. Whyte (1980:2016) demonstrated that corners with newspaper kiosks and with ambulant vendors were some of the most attractive spots for people on the streets in the context of his study. In the meantime, Anna Minton (2006) warned that, with the new trends of commercialization and privatization, local shops and local shoppers are disappearing. Moreover, specific to Asian contexts, several scholars (see Santoso, 2016; Sivam and Karupannan, 2013) emphasized the important role of informal vendors in providing diversity and liveliness to streets, and strengthening the local economy.

Much more than in other Western contexts, in China, prompts for increased business and commercial activities, considered by the Chinese researchers to give the character of a street (Cha et al, 2014; Feng et al., 2008; Kim et al., 2015; Qin et al., 2003; Zhao, 2007) have been almost constantly emphasized. The Chinese Government similarly acknowledged the importance of small businesses to unleash economic potential (Zhang Y. for English.gov.cn, 2016). However, divergent attitudes towards informal and ambulant vendors are encountered in China: while the state makes efforts to eliminate the informal economy on streets, some scholars in China highlighted the importance of street food and informal vending as an essential part of urban culture in Chinese cities (Friedmann, 2007; Greenspan, 2017; Liu, Zhang & Zhang, 2014; Lu & Fine, 1995; Orum et al., 2009).

2.7.4 Social attributes of urban streets

Jacobs (1961:1993) argued that safety in living was a result of the configuration of the built environment and of having people watching the street. Jacobs (1961:1993) additionally argued for having facades with windows bordering the street, in order to increase the possibility of having people watching the street from above. The UDC 1 in the UK (2007) similarly argued that the perception of safety as opposed to danger is not always directly related to the incidence of crime,

but areas with good visibility and lighting, where people can be seen or heard, participate to the human psychological comfort. On a similar note, Hillier (2004) demonstrated that gated communities offered a false sense of security, with no less crime than in non-gated communities, while traditional street patterns turned out to be the most advantageous and desirable to insure safety. Scholars also demonstrated that the presence of people attracts further other people (Whyte, 1980:2016) and that nobody likes to look out at an empty street (Jacobs, 1961:1993). Nevertheless, while the density of inhabitants might influence the liveliness of streets, this needs to be differentiated from overcrowding, argued Montgomery (1998). In the meantime, an additional principle for safety on streets suggested by Jacobs (1961:1993) and reinforced by Montgomery (1998) in the context of American cities was that of having a clear demarcation of the public space from the private space, with well-defined edges that still hold a quality of transparency. This was in contrast with the proposed 'transitional zone' by Kostof (2005, quoted in Xie, 2012), who praised the porch in traditional European cities, where the public space infiltrated the private domain and vice-versa (Xie, 2012).

Concerning further human activities taking place in public spaces, Gehl (1987:2011) categorized them as: necessary activities, optional activities, and social activities. Gehl (1987:2011) argued that urban design can influence the amount of recreational, optional activities, and furthermore, when having people in public spaces for optional activities, it becomes a favourable setting for social activities. In this regard, Gehl (1987: 2011) demonstrated that when the external conditions of time and place are optimal and once there are more opportunities for people to stop, sit, eat, play, a wider range of optional activities occur, which becomes a favourable setting for social activities. In an Asian context, Sivam and Karupannan (2013) warned that a too restrictive design can eliminate the human activities taking place naturally on the streets which can lead to empty public spaces.

Furthermore, at the intersection of physical attributes, of conceptions, meanings, and human activities, the idea of 'sense of place' has been conceptualized (Montgomery, 1998). Sense of place is shaped by lived experiences (Carmona and Tiesdell, 2007; Friedmann, 2007), while visual evidences of the past and details captured through sense perceptions add character and identity to a space (Carmona and Tiesdell, 2007; Carmona, Heath & Tiesdell, 2010). The importance of sense of place is given especially by individuals and families actively participating in the

larger community, a critical support for social capital (Ho & Douglass, 2008). Thus, Madanipour (2007) emphasized the importance of designing 'places' that last in time and that can adjust to changing circumstances.

Contributing to the sense of place are the cultural identity, the meeting places, public arts, landmarks or elements with distinctive characteristics and significance (Montgomery, 1998). Sense of place and place-making represent a critical support for social capital[32], argued Ho & Douglass (2008), with individuals and families actively participating in the larger community.

In China, although the social character of the street has been overall less emphasized, few studies highlighted the sense of belonging and the contextual identity (Cha et al., 2014; Du, Fu & Fang, 2012; Zhao, 2007) as reflecting the history and the culture of people and of the place (Cha et al., 2014; Zhao, 2007). Furthermore, the concept of 'sense of place' is more accurately translated as 'sense of belonging' or as 'place attachment' in the Chinese context (see for instance Cha et al., 2014; Du et al., 2012; Zhao, 2007), indicating the possibility of making a person feel as an integral part of their living environment. In addition, several scholars in China started emphasizing the importance of public participation (such as Dang & Zhou, 2016; Du et al., 2012; Zhao, 2007), ideas borrowed from Western countries.

Nevertheless, some preoccupation for social activities and public life in China can be understood from the highlighted need to attract different groups of people considering that people represent '*the source of energy of the street'* (Cha et al., 2014, p.15). However, in conditions of very high population densities in China, the perceived issues are sooner linked to overcrowding (Kuang & Huang, 2012; Miao, 2001), a reason for which moderate densities of buildings and of people have been suggested (Cha et al., 2014).

Additionally, across a few empirical studies, aspects concerning safety and security on streets have been mentioned (Qin et al., 2003; Zhao, 2007), although from the literature, fewer safety-related issues emerged on Chinese streets (see Deng et al., 2013). Concerning safety from traffic, a WHO report ("Global Status Report on Road Safety", 2015), showed how the reported road traffic fatalities in China decreased to almost half from 2004 to 2013. Furthermore, Deng et al. (2013) indicated that car to two-wheelers were the most frequent types of collisions in

[32] Social capital refers to social norms and social networks that enable people to act collectively (Woolcock & Narayan, 2002, quoted in Chang & Tipple, 2009).

Shanghai, although "*the majority of accidents recorded by traffic police had no casualties*" (Deng et al., 2013, p. 4).

2.7.5 An Extensive Checklist of Attributes, Constructs and Indicators for liveability at the level of the street

As different liveability studies employed different indicators, often without much consistency (Harvey & Aultman-Hall, 2016), measurement is still one of the most pressing issues for liveability (Balsas, 2004; Heylen, 2006, quoted in Leby & Hashim, 2010; Pacione, 2003a; Wheeler, 2001). Yet, evaluating both objective and subjective aspects of liveability is commonly acknowledged as very important (Pacione, 2003a; Zhang W., 2016), despite the increased difficulty when concluding and implementing the results (Zhang W., 2016). As Pacione (2003a) argued, the congruence between objective and subjective factors in a liveability study can vary from a very strong relation to a weak or non-existent one. Nevertheless, it is important to consider both 'the city on the ground' and 'the city of the mind' in liveability assessments, argued further Pacione (2003b). Furthermore, Okulicz-Kozaryn (2011) argued that the objective, non-self-reported understanding of liveability, differentiated from the subjective, self-reported understanding of liveability, are both differentiated from a normative understanding of liveability which usually refers to ideals.

Considering the main attributes emphasized in a wide range of studies concerning the street environment (see sections 2.7.1, 2.7.2, 2.7.3, 2.7.4), an Extensive Checklist of Liveability Attributes and Indicators to inform empirical studies on liveability at the level of the streets (Table 2-1) has been compiled.

The main objective criteria included in the framework are: Physical and Morphological Attributes of the Street Environment; Traffic Attributes; Functional Distribution and Local Economy; Socio-Demographic Characteristics of Inhabitants. Additionally, the social dimension is also reflecting a subjective perspective of liveability, for which the Socio-Psychological criterion has been deducted (Table 2-1).

Table 2-1 Extensive Checklist of Liveability Attributes, Constructs and Indicators at the level of the Street

OBJECTIVE ATTRIBUTES for LIVEABILITY at the LEVEL of the streets and adjacent communities		
Criteria	**Attributes and Constructs**	**Indicators**
Physical and Morphological Attributes	natural (micro)environment	topography, microclimate features, canals and waters (Cervero, 2009; Chow, 2014); landscape features (Ewing & Clemente, 2013);
	building density	building coverage, floor area ratio (Cha et al., 2014; Montgomery, 1998; UDC 2, 2007); residential density (Bosselman et al., 1999; Sanders, 2013);
	frontages & building morphology	historical period of development (Jacobs, 1961:1993); setbacks, building heights (Clifton et al., 2007; Ewing & Clemente, 2013; Sanders, 2013); building height to street width ratio; continuity of frontages; human scale, enclosure, complexity, transparency, landmarks, imageability, coherence, legibility, linkage (Ewing & Clemente, 2013);
	block typology	block dimensions, block permeability (entrances, lanes) (Carmona, 2014; Montgomery, 1998);
	street furniture and landscaping	street trees (Clifton et al., 2007; Jacobs, A., 1995); front-yard greenery, major pieces of street furniture (Ewing & Clemente, 2013); proportion of shaded pavements, streetlights (Clifton et al., 2007; Ewing & Clemente, 2013; Sanders, 2013);
Traffic Attributes	roadway configuration	pavement width, roadway width, curb cuts, buffers and barriers, pavement condition, roadway condition, parking (Clifton et al., 2007; Ewing & Clemente, 2013; Sanders, 2013);
	overall position in the road network	accessibility to public transportation, destination accessibility, distance to transit, street density, connectivity (Cervero, 2006; 2009); spatial accessibility (Hillier, 2014); intersection types (Clifton et al., 2007; Sanders, 2013);
	motorized flows	traffic speeds (Sanders, 2013); traffic volumes (Appleyard & Lintell, 1972; Bosselman et al., 1999; Sanders, 2013); traffic control devices (Clifton et al., 2007); traffic composition, traffic directions, number of car lanes (Bosselmann et al.,1999; Clifton et al., 2007);
	non-motorized flows	flows of cyclists, pedestrian flows (Ewing & Clemente, 2013); cycling paths, obstructions, crossing aids (Clifton et al., 2007); facilities for the disabled (Sanders, 2013);
	traffic hazards	car accidents, noise and pollution from traffic (Appleyard & Lintell, 1972; Sanders, 2013); aggressive road users, the response to traffic rules (Sanders, 2013);

OBJECTIVE ATTRIBUTES for LIVEABILITY at the LEVEL of the streets and adjacent communities		
Criteria	**Attributes and Constructs**	**Indicators**
Functional Distribution & Local Economy	accessible uses and facilities for living	uses in segment, services and amenities on the streets (Clifton et al., 2007; Sanders, 2013); commercial distribution (Qin et al., 2003); green space (Cha et al., 2014; Montgomery, 1999; Qin et al., 2003);
	ground floor uses	shop fronts, active frontages (Carmona, 2014; Ewing & Clemente, 2013; Montgomery, 1998);
	local economy	locally owned shops, economic profiles of businesses, renting and purchasing rates, (Carmona, 2014); social classes catered by businesses, informal economic activities, illegal economic activities (Greenspan, 2014; 2017; Kim, 2015);
Socio-Demographic Attributes	social capital, demographics and public safety	age, gender, income, education, length of residence (Sanders, 2013); house ownership (Appleyard & Lintell, 1972; Sanders, 2013); subculture origins (Friedmann, 2007; Orum et al., 2009); crime rates, security, presence of police stations/police officers (Carmona, 2014; Gaubatz, 2008; Sanders, 2013; UDC 2, 2007); cleanliness and sanitation (Clifton et al., 2007; Sanders, 2013); population density (Cha et al., 2014; Ewing & Clemente, 2013; Sanders, 2013);
The Socio-Psychological Factor	Sense of Place/ Sense of Belonging	memory of the place, distinctiveness (Carmona, 2014; Cha et al., 2014; Montgomery, 1998; Ewing & Clemente, 2013); perception senses (Carmona et al., 2010); community involvement (Sanders, 2013); home territory (Appleyard & Lintell, 1972; Bosselman et al., 1999; Sanders, 2013); local gatherings, events, meetup places (Gehl, 1987:2011; Montgomery, 1998);
	Social Interaction	human activities on the streets (Sanders, 2013); number of friends and acquaintances (Appleyard & Lintell, 1972; Bosselman et al., 1999; Sanders, 2013); outdoor (dining) tables and seats (Ewing & Clemente, 2013); formal and informal social networks (Friedmann, 2007; Orum et al., 2009; Montgomery, 1998);
	Safety perception	facades with windows (Ewing & Clemente, 2013; Jacobs, 1961:1993); children playing (Appleyard & Cox, 2016; Gehl, 1987:2011; Sanders, 2013); graffiti (Ewing & Clemente, 2013); ratings of perceived safety from traffic and for living (Sanders, 2013);

From the compiled list, depending on the context of study, indicators can be prioritized. In the Chinese context, careful attention needs to be given to the particularities of: the higher densities of people and of buildings, the diversity of social activities, the formal and informal economic activities, the congestion and the physical environment concerns (as reflected at the street level).

2.8 Methodological approaches for liveability at the level of the street

2.8.1 Previous methodological approaches on liveable streets

The methodological approach of the first liveable streets study conducted by Appleyard and Lintell (1972) was initially based on overall ratings of the environmental concerns in San Francisco and on direct observation of street blocks. For a more detailed study consisting of surveys and interviews with residents, the authors narrowed down the research at three street sites with similar physical characteristics, inhabited by residents belonging to similar income groups. The main differentiating features of the three parallel street segments were the traffic volumes (Appleyard & Lintell, 1972). The authors assessed five defined liveability indicators on the three streets: traffic hazard; stress (including noise and air pollution); social interaction (number of friends and acquaintances); privacy and home territory; environmental awareness (how well the residents knew their street). Other revisiting liveable streets studies increased the complexity of the original study of Appleyard and Lintell (1972), through: selecting a higher number of street segments, including multiway boulevards, and adding density as an extra factor (Bosselman et al., 1999); through considering a higher number of physical attributes on the streets based on their frequency in literature (Mahmoudi et al., 2014); through increasing the sample of participants and adapting the formulation of the survey questions to a different cultural context (Sanders, 2013).

In China, the liveable streets studies are in lower number and have limitations concerning the approached research strategies. For example, a research based on Appleyard's (1981) methodology conducted by Qin et al. (2003), used the survey as a main research instrument and was reduced to one street in Hangzhou and one street in Shanghai. The investigation elements in the case of Qin et al.(2003) were: the traffic conditions, the commercial distribution, the social activity, the street activities.

Qin et al. (2003) deducted some pertinent principles and recommendations, however, they considered only two street sites in their study. Moreover, other limitations to the study of Qin et al. (2003) consisted in the fact that they did not provide a definition for liveability in the Chinese context, and did not detach their study from the Western approach (see Appleyard & Lintell, 1972) of linking liveability mainly to traffic issues. Another study on liveable streets in China was that of Zhao (2007), and, although it reviewed the foreign and domestic literature concerning liveability at the street level, only two streets in Hefei, Anhui Province, have been selected for the empirical study. Analysed on these two streets were the urban design, the micro-level design and the local culture, acknowledging also the importance of health and security on the streets. Overall, the empirical liveable streets studies conducted in China did not present enough depth in the understanding of the liveability concept, and resulted into simply testing some of the previous Western theories in the Chinese context. Although some of the findings were more context-specific (see Qin et al., 2003), the empirical studies did not have a significant sample of streets for extrapolating (without bias) the results to a wider territory than that of the studied cases (see Qin et al., 2003, Zhao, 2007). Additionally, more recently, Cha et al. (2014) had a theoretical approach of liveable streets in the Chinese context, however their theories have not been tested through empirical studies.

2.8.2 Other methods of inquiry on streetscapes

Considering further other street studies (concerned with physical, functional or social aspects of the streets, which are relevant to the concept of liveability), other scholars have used varying methods of research that are noteworthy.

First of all, focusing on a physical-morphological enquiry on urban streets, studies with historical or aesthetic-perceptual focus have been conducted (often accompanied by illustrations, cross-sections and plan drawings of the streets). Researching traditional European streetscapes represented a main method used for conceptualizing ‘liveable’ streets (Xie, 2012), while recognizing the attractive charm of old streets in cities. For example, focusing on an aesthetic perception of the street, Sitte (1889:1992) argued that, in order to achieve streetscapes with satisfactory urban forms, streets must be considered in three dimensions, as volumes. Furthermore, Allan Jacobs (1995), using hand-drawings to capture the physical characteristics of streets, highlighted practical design features for ‘great streets’ in cities across the

world. Still, these studies with a physical-morphological focus were not necessarily related to the living function on the street, but were concerned more with emblematic streets in cities.

Secondly, focusing on a functional enquiry on urban streets, Geographical Information Systems (GIS) analyses have been used to capture the connectivity of street networks across entire cities. An example is the study of Ewing & Cervero (2010) looking at traffic conditions, distances to transit and transit-oriented developments (TOD). Furthermore, patterns of movement across street networks, spatial configurations, connectivity and relations within a circulation system have also been illustrated with the Space-Syntax[33] tool (see for instance Hillier, 2014). However, as Harvey and Aultman-Hall (2016) argued, although these geospatial methods are popular for "*capturing macroscale development patterns*", they "*lack precise geometric data for mesoscale objects, such as buildings and trees, which are critical for defining streetscape spaces*" (Harvey & Aultman-Hall, 2016, p. 155).

In this manner, besides studies based on geospatial methods, there have been used field audits recording detailed physical characteristics of streets, including architectural features, materials, as well as functional aspects, such as street dimensioning for different transport modes. As Harvey and Aultman-Hall highlighted, studies based on field audit studies usually promote the use of non-motorized transport, which is regarded as a "*popular indicator of liv[e]able urbanism*" (Harvey & Aultman-Hall (2016, p. 154). Harvey and Aultman-Hall (2016), in their review of approaches for measuring streetscapes for liveability, indicated the Systematic Pedestrian and Cycling Environmental Scan (SPACES, Pikora et al., 2002) and the Pedestrian Environment Data Scan (PEDS, Clifton et al., 2007) as some of the most popular street audits. Furthermore, another type of street audit has been developed by Ewing and Clemente (2013), however, the audit was focused more on the morphological characteristics of the street through a qualitative enquiry aiming to measure the urban design qualities in pedestrian-oriented spaces. For this, Ewing and Clemente (2013) identified fifty-one perceptual qualities for the street design, and created a tool to measure the five most recurrent perceptual qualities in the literature (imageability, enclosure, human scale, transparency,

[33] Space Syntax is based on a quantitative analysis with the support of geospatial computational technology (Hillier, 2014), developed in the 1970s-1980s by professors Hillier and Hanson, together with colleagues at The Bartlett, University College London.

complexity), establishing their relation to the walking behaviour. However, although the field audits capture both physical and functional aspects concerning streets, in this type of approach, there is still a disconnection from the people and their reasons for using the streets.

In this manner, in other studies, there have been employed methods focused on the social character of the street and on the users of public spaces (the common people). For instance, the base for social enquiries on streets can be considered the on-site observations of Jane Jacobs (1961:1993), showing why certain urban spaces are more often used by the people and become successful, while others aren't. Furthermore, the study of Whyte (1980:2016), employing the methods of direct observation and filming, revealed the people's behaviour in relation to the spatiality of small urban spaces. Moreover, Jan Gehl (1987:2011; 2010) widely investigated the functionality of public spaces, combining several methods of observation and behavioural mapping[34]. Gehl's research (see also Gehl & Svarre, 2013) was concentrated mainly in the European context, although some of his recommendations have often been exported to other parts of the world, including the USA, Australia or even China.

Finally, other complex studies in relation to streets combined various research methods and considered multiple levels of analysis. For instance, Carmona (2014) developed a theoretical framework for studying high streets (main streets) in London, based on four functions: physical fabric, exchange (social and economic), movement, real estate. Additionally, Carmona (2014) used a set of empirical investigations to explore the local impact of London's high streets as well as their city-wide contribution. Another example is the study of Kim (2012, 2015), who used the methods of cartography and social ethnography (observations and interviews) for understanding life on the sidewalks of Vietnam. Considering the politics of public spaces, and associating an architectural background with a social preoccupation, Kim (2012) mapped all the claims and uses on selected sidewalks in Hanoi at different times of the day, at both weekdays and weekends and revealed the dynamics of the sidewalks in space and time.

[34] Behavioural mapping refers to the simple mapping of what happens on the plan of the selected street segments, using symbols to indicate where people are conducting various activities, including standing or sitting (Gehl, Svarre, 2013).

Finally, the selection of research methods concerning streets in relation to liveability will have to depend on the context of the study. For example, referring to Asian contexts, Anna Greenspan (2014) highlighted the importance of mapping the dynamism of the 'shadow economy' and the intensity of economic transaction (that contribute intensely to the liveliness of the streets), rather than only taking account of the population density (often considered to be problematic). This is an important aspect to consider in Asian contexts, despite the fact that urban planners have too "*few tools to map and analyse these hybrid, multiple and highly productive arrangements*" (Greenspan, 2014, p. 187) of economic-related human activities on the Asian streets.

2.9 Conclusion to Chapter 2

Liveability is not only a concept, it is more than an abstract idea or a general notion. Liveability is also not only a construct, as it involves various conceptual elements, as well as subjective and objective factors and attributes. Liveability is not a model; there is a set of theories for liveability, but not a universally accepted system used as an example to follow or imitate. Liveability is rather a discourse, expressed through written or spoken communications. 'Liveability' is a long lasting pursuit (de Chazal, 2007; Liu & Wang, 2013; Ma, 2007; van Kamp et al., 2003) in human settlements, and can vary with the extent of analysis and of judgement (Doxiadis, 1970). Furthermore, the discourse on liveability and its understanding might vary from area to area based on natural conditions of living, on the people's background, culture, values, lifestyles, on social groups (Liu & Wang, 2013; Ma, 2007; UN Habitat II, 1996).

Various dimensions, principles and attributes have informed liveability studies in different locations. Across the world, at the territorial level of analysis (preponderantly in cities), in the discourse of academic researchers dominant were the social issues, besides other concerns on the physical environment and on the functional distribution of uses (see for instance Balsas, 2004; Cervero 2009; Ho & Douglass, 2008; Kearns et al., 2000, quoted in Leby & Hashim, 2010; Pacione 1990; Wheeler, 2001). Furthermore, other groups of actors (practitioners, alliances, politicians) linked liveability more to transportation issues, to the design in the city, as well as to intercity competition (see Cities Alliance, 2007; Lennard, n.d.; NARC,

n.d.). Above all, and in general conformation with the wider academic discourse, the international organizations concerning development in human settlements (see the "Livability Agenda for 21st Century", World Bank, 1996) emphasized three main dimensions: the functionality in services provision, the physical environment (both built and natural environment) and the socio-economic dimension in cities.

Compared to the body of literature on liveability in other countries (especially compared to Western countries), in China, the understanding of liveability is more broad, closer to the definition of successful human settlements put forward by Doxiadis (1970) and continued by Wu Liangyong (2003, 2006, 2010). The broadness is well expressed through four most commonly adopted dimensions of liveability – the economy, the social, the environment, the governance. The significant differences in the dimensions adopted in China compared to the dimensions of liveability adopted in the West and in other parts of the world are: the strong emphasis placed on the economic development, not only from the part of the political representatives, but also from the part of academics and practitioners, as well as from the part of inhabitants; another significant difference stands in the strong emphasis placed on a good governance, seen as a pre-condition for the stability of the other dimensions. However, on a more profound note, in the Chinese settlements there is also a particular emphasis placed on the harmony between human and nature, on the people-oriented developments, and on the respect for the history and the culture of the place (Zhang Wenzhong, 2016, Wu Liangyong, 2010).

Concerning streets, the liveability discussions involve aspects that can form mutually exclusive choices (such as conditions for traffic and infrastructure, but also walkable environments and safety for children; social interaction but also a clean environment; etc.). However, extracting the main attributes highlighted in the academic discourse concerning streets through the liveability perspective, streets should be: safe, with a strong sense of place or with place making elements, where social interaction can occur (see, among others, Appleyard, 1981; Clayden et al., 2007; Dumbaugh, 2005; Gehl, 2010; Jacobs, 1961:1993; Montgomery, 1998). All these attributes should be overlapped on a good living environment that offers satisfactory living conditions, with consideration for the physical and traffic characteristics, as well as for the facilities and services in proximity.

For the context of China, based on previous theorizations, the emphasized aspects that affect liveability at the level of the streets and communities include: the humanized environment (referring mainly to the convenience of using the street as a physical entity in the city), the facilities and services, the local economy, the sense of belonging (see for instance Cha et al., 2014; Du et al., 2012; Kim et al., 2015; Qin et al. 2003). Safety and conditions for social interaction, although less emphasized in the Chinese context (in previous empirical studies), are also important to be considered in relation to Chinese streets, based on the experience of other liveable streets studies in international contexts and of the opinions of some Chinese scholars (see Qin et al., 2003).

At last, considering the wide range of street features that might affect liveability, an Extensive Checklist of Attributes, Constructs and Indicators for liveability at the level of the streets has been compiled (Table 2-1). The attributes and indicators in the checklist have been extracted under the analytical criteria of Physical and Morphological Attributes, Traffic Attributes, Functional Distribution of Uses and Local Economy, Socio-Demographic Attributes (which comprise mainly objective indicators) and the Socio-Psychological Factor (comprising mainly subjective indicators).

Additionally, as many of the previous liveable streets studies have been reduced to studying the impact of traffic on the social life adjacent to streets, several other research approaches (historical-perceptual, functional, social and ethnographic approaches) have been reviewed to serve as inspiration when putting forward a comprehensive methodology for studying liveability at the level of the street.

3 METHODOLOGY

3.1 Introduction to Chapter 3

This is a predominantly qualitative enquiry into the understanding of the concept of liveability and its applicability at the level of residential streets in Shanghai. It primarily uses qualitative sources; however, additional quantitative sources and analysis have also been employed. The result is mixed methods research combining various research strategies and multiple sources of evidence.

This chapter presents the overall research design and introduces five research sub-questions that informed the steps taken in order to answer the main research question. It introduces the street samples and samples of informants, and presents the tools employed and methods of data collection and data analysis. The chapter concludes by defining the Methodological Framework of Indicators that guided the liveability field study of cases of streets in Shanghai.

3.2 Research Design

3.2.1 Rationale

In the first place, to obtain an in-depth understanding of the liveability concept in human settlements, this thesis considers the recommendation of Wu Liangyong to employ ‘holistic’ and ‘integral’ thinking - that should be ‘extensive’ enough to capture the complexity of human settlements, yet, at the same time, ‘focusing’, so as to grasp the main points without being trapped by the philosophy of complexity (Wu Liangyong, 2005; Wu Tinghai, n.d.).

Furthermore, as presented in the literature review (see Chapter 2, section 2.8.1), previous empirical ‘liveable streets’ studies have been limited to the practicality of how to respond to the changes brought about by automobilism on urban streets, without necessarily conceptualising the understanding of liveability in the context of the respective studies (see Appleyard & Lintell, 1972; Appleyard, 1981; Bosselmann et al., 1999; Mahmoudi et al., 2014; Qin et al., 2003; Sauter & Heuttenmoser, 2008; Sanders, 2013).

Moreover, compared to other comprehensive studies of urban streets that consider various aspects of liveability and that have generated significant theoretical output (see for instance Jacobs, 1961:1993; Gehl, 1987:2011), the context of this

research differs considerably. Many explanations for the situations that might be encountered in this context cannot therefore be based simply on previous theories, but can only be explored and understood through careful contextual consideration, taking an integrated approach.

In this regard, I considered that the few studies that successfully linked theoretical understandings with empirical studies in urban spaces (see for instance Kim, 2012; Carmona, 2014) have been based on complex research designs combining a range of research strategies (see Chapter 2, section 2.8.2). In a similar manner, this study requires a complex research design based on multiple research strategies that can capture the different facets of liveability on different levels of analysis, using multiple sources of evidence.

Overall, it is therefore necessary to bridge the theoretical and the empirical enquiries on liveability, making the link between the liveability conceptualization and the practicality of liveable streets in the context of Shanghai. In addition, as the original meaning of liveability is 'suitable to live in' (see Chapter 2, section 2.2), it has been considered important to place the liveability enquiry at the level of 'residential' streets, in order to analyse streetscapes in direct relation to how people live.

3.2.2 Research sub-questions

Consideration of the attributes of liveability from the literature review (see Chapter 2, section 2.7.5, Table 2-1) led to the research sub-questions indicating the steps needed to answer to the main research question. As presented in Chapter 1 (see section 1.6), the main research question of this study requires *to define the liveability understanding and to find out how it applies at the level of the street in a Chinese context*. To this main research question, the research sub-questions are formulated as follows:

> ***sq0*** *- How is liveability conceived and practiced in Shanghai from the perspective of multiple stakeholders?*
>
> ***sq1*** *- How do the physical and morphological characteristics of the built environment in Shanghai influence the concept of liveability at the level of the street?*
>
> ***sq2*** *- How does automotive traffic impact liveability on residential streets in Shanghai and how is traffic a barrier for social interaction?*

sq3 *- How do the physical facilities for living, the functional distribution of secondary land uses, and economic activities influence liveability at the level of residential streets in Shanghai?*

sq4 *- Which socio-demographic characteristics and socio-psychological factors affect the perception of liveability on residential streets in Shanghai and how do they influence it?*

The research sub-questions sq1, sq2, sq3 and sq4, which are based on the assessment criteria of liveability deduced from the literature review (see Table 2-1, Chapter 2), thus respond directly to Research Objective II (*meant to inform the design and planning of liveable streets in Shanghai by considering the effect of particular factors*). Furthermore, the synergic sum of all the research sub-questions (including the perspective of concerned stakeholders, obtained through research sub-question sq0) inform Research Objective I (*meant to define liveability at the level of the street in Shanghai based on a framework of influential liveability factors relevant for this context*), see Figure 3-1.

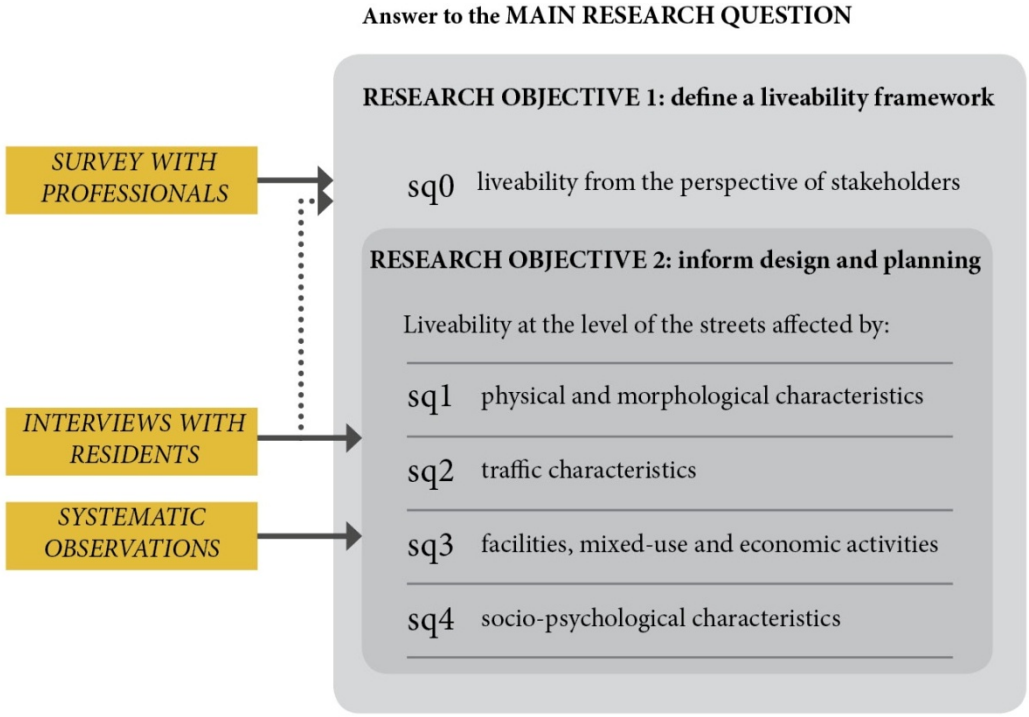

Figure 3-1 The research strategy considering the research objectives

3.2.3 Research approach

Along with the theoretical background of the liveability concept extracted from the literature review, it was important to consider, as a first step of the research, the views of concerned stakeholders in Shanghai and their influence on how the paradigm of liveability is conceptualised and practiced (providing answers to research sub-question sq0). As Carmona and Tiesdell (2007) argued, different actors and decision-makers who have different objectives, motivations and resources, are all involved in producing the built environment, and relate to one another in different ways.

This theoretical and practical understanding of liveability in Shanghai from the perspective of stakeholders was followed by an empirical study on selected street sites. In this manner, the concluded liveability aspects resulting from the study with Shanghai professionals had to be tested against the common citizens in Shanghai and against the observations from the field, to see whether the theoretical principles of liveability concur with the aspects of liveability in terms of the way life is lived. A field study was therefore conducted to capture the perceptions of the residents, in addition to on-site observations on selected streets (which provided answers to research sub-questions sq1, sq2, sq3 and sq4). The field study on street sites was placed at the core of this liveability research in Shanghai, because, as previously stated, liveability involves both objective and subjective aspects, and might be perceived differently by different people, according to different contexts and subcultures (see Chapter 2, section 2.7.5).

The design of the field study was structured on cases of residential streets in Shanghai. A case study approach implies much more than a simple study of a phenomenon in the field, as Yin (2009) argued, involving, actually, its relation to the complex dynamics of reality (Groat & Wang, 2013; Yin, 2009). One of the focused aims of this research was therefore to investigate liveability through understanding the socio-cultural phenomenon embedded in the way life is lived on residential streets in Shanghai.

Furthermore, according to Harvey and Aultman-Hall (2016), there are three suitable scales for analysing urban streetscapes: the *macroscale* (focusing on the layout and development of whole neighbourhoods or cities along street networks); the *mesoscale* (defined by the size and arrangement of large objects such as buildings

and trees on the street), and the *microscale* (focusing on the architectural styles, materials, and other detailed configurations of the street space). For this study, the selection of street sites has been done at macroscale, as several typologies of streets had first to be identified within the city. After this selection, analysis of each case was pursued at mesoscale, with a focus on the overall environment of the street and its perception on the part of the residents. Studying streets at mesoscale was considered the most appropriate in relation to the liveability attributes, and was corroborated by the emphasis of Harvey & Aultman-Hall (2016) on the need to develop robust approaches for measuring human experience at the mesoscale level. Architectural details and other microscale elements of the street were therefore not in focus, but they were considered as part of the whole street ambient; having the scope of primarily defining liveability, this study has adopted an urban scale of enquiry, concerned with the public space of the street in connection to habitation units, as experienced by urban dwellers. In this manner, decorative elements or specific materials would have been much too subtle in the analysis of the overall resident perception at an urban scale of enquiry. Nevertheless, the way frontages and the types of bordering residential compounds affected the pedestrian experience of the street have been considered.

While maintaining an urban scale of enquiry, by following the analytical criteria for liveability at the level of the streets (deduced from the literature, see Chapter 2, Table 2-1, page 51 and reflected in research sub-questions sq1, sq2, sq3 and sq4), fifteen residential street sites have been selected. These have been denominated as S, M, L, XL1 and XL2 streets, according to their morphological features (see section 3.3.2).

Moreover, concerning empirical studies of street sites, scholars highlighted the need for integrated research methods that reveal, on one side, the physical characteristics of streetscapes, and, on the other side, the social phenomena, behaviours and preferences which occur in the public space of the street (Harvey & Aultman-Hall, 2015; Kim, 2012). By following a method entirely based on observation and physical surveys leaves room for interpretation of why people are present in certain places, argued Kim (2012), especially in the context of less studied cultures. Therefore, this field study on cases of streets employs various methods of data collection and analysis to capture both the objective and subjective sides of liveability at the street level. These include interviews with residents, along with

physical surveys and direct observation, behavioural mapping, photography and counting. These tactics have been paired under two major research methods, described in the following sections as: ‘interviews with the residents’ and ‘systematic observations’.

Overall, the approach of this study is based primarily on a qualitative enquiry (see Groat & Wang, 2013), combining, in essence, various empirical materials for the study of streets in natural settings. However, although the study analyses preponderantly qualitative data (such as that obtained from the online survey and the semi-structured interviews with Shanghai professionals, from the semi-structured and the structured interviews with Shanghai residents, from observations and behavioural mappings, and from photography on street sites), it also uses several quantitative sources (namely, data from traffic counting, pedestrian counting, and physical measurements of the streets). This mix of qualitative and quantitative sources allowed a comprehensive investigation of liveability on residential streets in Shanghai, resulting in a mixed methods research (see also Creswell, 2009:2014; Creswell & Clark, 2011; Groat & Wang, 2013) based on combined research strategies and multiple sources of evidence (see Groat & Wang, 2013).

3.2.4 Stages of research

3.2.4.1 Study with Shanghai professionals

A first stage of the study aimed to discover how liveability is conceived and practiced in Shanghai. This first stage of the research linked theoretical understanding from the literature with the practicality of an empirical study on street sites. This step additionally intended to complement the relatively reduced number of papers found in the Chinese context and the researcher’s poor understanding of written Mandarin Chinese. Additional objectives of this first stage of the study were to provide a greater depth and validity to the liveability aspects that are important to consider in the Shanghai context, to inform a framework of indicators applicable for studying liveable streets in Shanghai, and, overall, to inform the way liveability is conceptualised in a Chinese context (answering research sub-question sq0). This first stage of the study was initially designed as a self-administered online survey targeting different categories of actors. However, due to the insufficient response rate of some categories of stakeholders, the results of the online survey have been supplemented by targeted semi-structured interviews.

3.2.4.2 Interviews with Residents

By conducting interviews with residents, the aim was to understand themes from their daily life, expressed from their own perspective. The adopted rationale was to start with exploratory semi-structured interviews to extract the core perceptions of residents and the main points of discussion important for them, without imposing a Western preconception of the (subjective) meaning of liveability. Through the structured interviews conducted in the next phase, it was possible to test how prevalent were the views extracted from the semi-structured interviews among a larger number of respondents, and how perceptions differed among residents of residential streets with different characteristics. There was sought a relation of complementarity between the semi-structured interviews and the structured interviews. The results obtained through the structured interviews illustrated, detailed or clarified the results of the semi-structured interviews.

The semi-structured and structured interviews with the residents have been employed overall to reveal their beliefs, views and perceptions about liveability issues on their streets, and how their perceptions were affected by the built environment conditions in which they were living (answering more directly to research sub-question sq4, but informing the response to the other research sub-questions sq0, sq1, sq2 and sq3 as well).

3.2.4.3 Systematic Observations on Streets

According to Macmillan Online Dictionary, 'to observe' means "*to watch or study someone or something with care and attention in order to discover something*". The observation method used in this study is non-participant. By conducting non-participant observation, I was present in the social setting observed, but rarely participated in what was happening. Direct, unobtrusive observation was preferred to participant observation to ensure the maximum objectivity of the observation notes, but also because, not being native to China, my presence would have disturbed the natural flow of activities.

This type of on-site, direct, but systematic observation is relatively underused in social research according to Bryman (2008); it has, however, been widely used in architecture and urban planning studies, especially when recording the behaviour of city dwellers. As Gehl and Svarre (2013) confirmed, observation is a key method that provides interesting information about the interaction of people with the physical

environment, with means that are simple and cheap. One of the pioneers in city-life studies, Jane Jacobs (1961:1993), encouraged those concerned with city issues to look closely at what happens in cities, and also to '*listen, linger and think*' about what it is being seen (Jacobs, 1961:1993). This suggestion was later reinforced by Gehl and Svarre (2013) who mentioned that while the sense of sight is key to observation, this does not mean that the other senses should be closed. On the contrary, it is necessary to use all the available senses for a deeper understanding of people's interaction with their environment. Furthermore, Gehl and Svarre (2013) argued for observing the interaction between people and public spaces directly with the human eye, as this can provide a better understanding of the space, rather than using technical solutions such as camera surveillance and GPS (Global Positioning System). In this study, on-site observation is supported by document analysis (available maps and archives) and contextual analysis (field audit, photography, behavioural mapping, counting), see sections 3.5.3, 3.6.2. It reveals the physical and morphological characteristics, traffic issues, facilities and functional distribution of secondary uses, and the economic and human activities taking place on the selected streets (directly answering research sub-questions sq1, sq2 and sq3, and partly answering research sub-question sq4).

3.2.5 Briefing the research process

This research approach using combined strategies usually presents a great challenge for researchers attempting to integrate the strategies while at the same time maintaining the overall coherence of the study (Groat & Wang, 2013). However, considering that architecture and urban planning are multidisciplinary professional fields, approaches that combine different strategies are often necessary (Groat & Wang, 2013). Combining methods could actually eliminate the weak points in each stage of the research (Groat & Wang, 2013), with the simultaneous benefit of complementing each other.

As part of the research process, starting from the literature review (especially considering the Extensive Checklist of Attributes, Constructs and Indicators, see Chapter 2, Table 2-1) and obtaining further insights from the first stage of the study with the main actors in Shanghai, I established a Methodological Framework of Indicators for the field study on streets in Shanghai. While assessing the indicators defined in the Methodological Framework, I gained further understanding of the

depth of life on the selected street sites, through interviews with the residents and through systematic observations (Figure 3-1).

In this manner, this research was designed to advance along a trajectory similar to that of a hermeneutical circle, interpreting parts and attempting to understand the whole, after which the parts have been again related to the whole in a spiral of meaning-making (see Brinkmann & Kvale, 2015). In the back-and-forth process between field analysis at the level of the street and the theoretical conceptualisation of liveability, a deeper understanding of the concept of liveability in a Chinese context became possible. After all, as Zhang Wenzhong (2016) emphasised, the community formed at the street level is nested in a larger area, the area is nested in the city, and the city (Shanghai) is nested in the larger region and in the country (China). One level of analysis cannot therefore be entirely separated from the other levels (Zhang, W., 2016), as it is not functioning in a closed system.

3.3 Street Sites Selection

Street sites in Shanghai have been selected following a purposive sample. The criteria for selecting the street sites has been resulting from the literature (see Chapter 2, Table 2-1). The first three criteria for selecting street sites are directly linked to the built environment conditions: 1. Morphological Characteristics; 2. Functional Distribution; 3. Traffic Attributes; while the fourth criterion is concerned with the population that is inhabiting the built environment: 4. Social Attributes.

3.3.1 The historical-morphological transformation of Shanghai

Shanghai was initially a fishing village, which flourished in the Ming[35] and Qing[36] Dynasties (see Figure 3-2). Shanghai has been rising to a predominant centre of commerce between the East and the West in the middle of the 19th century, when it was designated as a treaty port after the First Opium War[37], based on the Treaty of Nanking in 1843 (Shanghai Urban Planning Exhibition Centre, 2016). Following this moment, foreign concessions were established in 1845 by Britain, in 1848 by the United States, and in 1849 by France (Shanghai Urban Planning Exhibition Centre, 2016), setting up their own industries and financial institutions (Chen, Y., 2007). The British and the American concessions were later merged into what become known as 'The International Settlement' (Liang, 2008; Macpherson, 1994; Shanghai Urban Planning Exhibition Centre, 2016).

[35] Ming Dynasty in China was established from 1368 to 1644.
[36] Qing Dynasty in China, the last of the dynasties, was established from 1636 to 1912.
[37] The First Opium War (1839-1842), was fought between the United Kingdom and Qing dynasty of China.

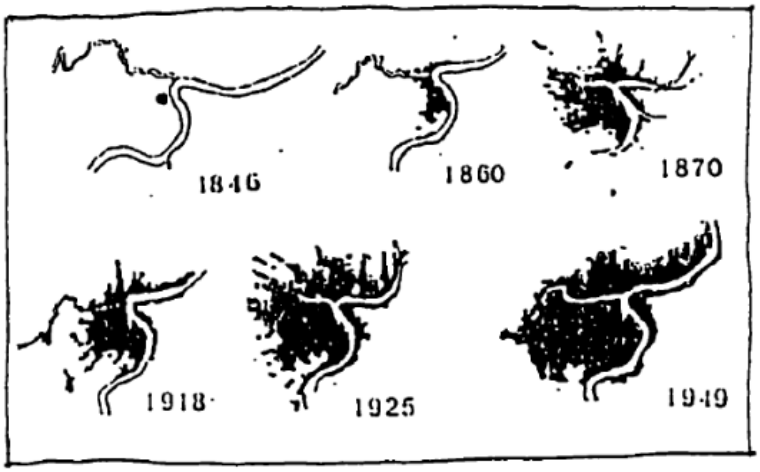

Figure 3-2: The evolution of Shanghai during 1864-1949; Source: Zhang, 1992, found in Feng, 2014

Once the Foreign Concessions have been settled, the period of modernity (先戴, *xian dai*) started in Shanghai (Zhang L., 2016). Becoming a gateway to foreigners, the city developed rapidly (Chen, Y., 2007). Nevertheless, the embrace of the new 'modern' following foreign trends was done with an "*inclusive attitude, overlapped on the local culture*" (Zhang L., 2016), maintaining some of the traditional features and lifestyle.

Following the hybrid development during the Concession period, the city became the predominant financial hub of Asia Pacific in the 1930s (Chen Y., 2007, see Figure 3-4). Under the political system of the Republic of China, Shanghai's administrative status was raised to that of municipality in 1927 (Danielson, 2004; Feng, 2014). The plan for a new city centre was drawn[38] in 1930 at the North-West of the Foreign Concessions (see Figure 3-3), however it never got completed, being interrupted by the Japanese invasions (Danielson, 2004; Feng, 2014; Macpherson, 1994).

[38] The "Greater Shanghai Plan" (大上海计划, Dà Shànghǎi Jìhuà), 1930.

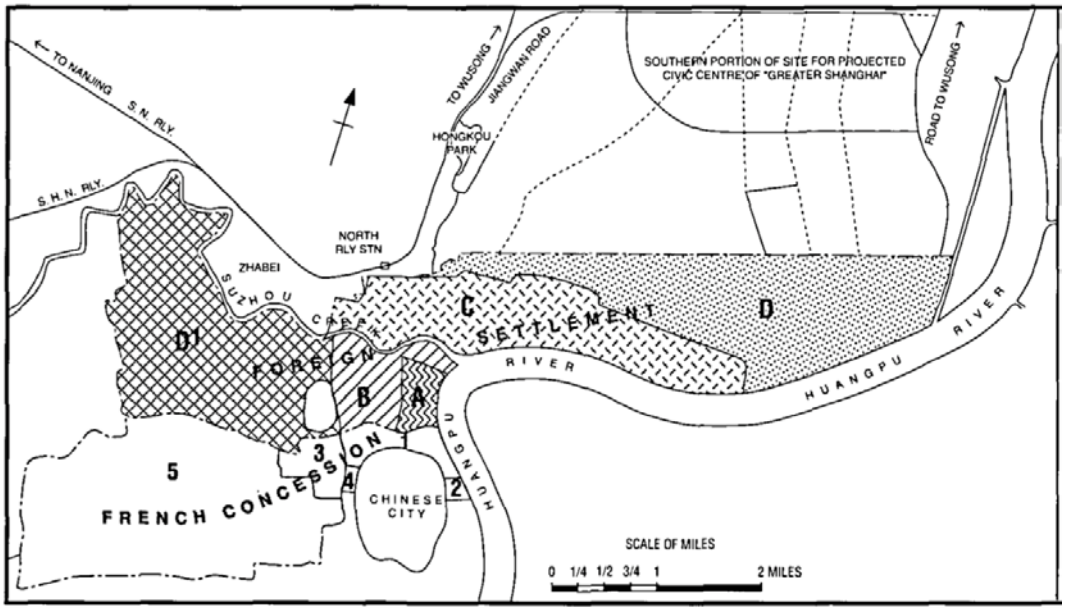

Figure 3-3: Foreign Concessions in Shanghai and the original Chinese city; Source: Macpherson, 1994

From 1949 until the end of the 1970s, under the leadership of Mao Zedong, this period was characterized by heavy industrialization, firm state control and the elimination of bourgeoisie (Chen, Y., 2007). After the Maoist period, once with the economic transition started in 1978, Shanghai underwent a booming economic prosperity (Zhang L., 2016). After the 1990s, it followed a phase of 'massive construction', known as 'the Great Build', which included the expansive Pudong development (Chen Y., 2007) and the Development of Lujiazui as a prominent, first financial district of the nation (Chen, Chen, 2014).

Shanghai is today one of the most populous and urbanized places in China[39]. As seen in Figure 3-4, the urban area of Shanghai is known as the Shanghai Central City, differentiated from the provincial Shanghai Municipality. Geographically, Shanghai is a port city and a delta city, located in the Yangtze River Delta (Figure 3-4), which grants it, along with the major water elements that surround it, an advantageous position for trading and for foreign input. In this manner, Shanghai is situated in a strategical position to develop domestic economy, along with international business, benefiting of the foreign technological inventions and methods of production (Wu F., 2006).

[39] Shanghai had 24.15 million people in 2016 and an average population density of 2.059 people per kilometer ("Shanghai population", World Population Review, 2018).

Figure 3-4: Satellite map of Shanghai Central City, within the Municipality of Shanghai; Source: Stratfor Worldview, 2013

3.3.2 Morphological characterisation of built areas in Shanghai

In the map illustrating the 'Expansion of the Shanghai's Built Urban Area, 1840-1982' (Figure 3-5), found as a secondary source in the work of Sha et al. (2014), the built areas with different morphological characteristics have been identified as: the area built before 1840 as part of the Old Town called Nanshi; the area built between 1841-1911 corresponding to the foreign American and British settlements; the area built between 1912-1937 corresponding to the expanded foreign concession area, including the French Concession; the area built in the Early Modern period during the war years of 1938-1949, before the foundation of the People's Republic of China; the area built between 1950-1982 before the opening to the international market.

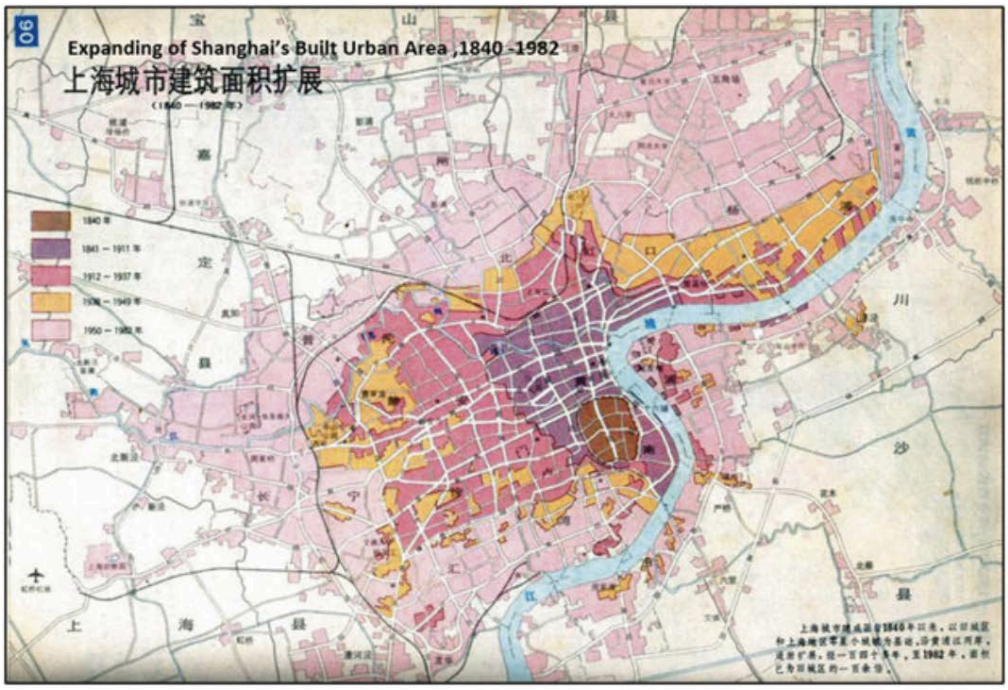

Figure 3-5: Expansion of Shanghai's built area, 1840 - 1982; Source: Shanghai Planning and Land Resources Administration Bureau, found in Sha et al., 2014

Along with areas built in different historical periods (Figure 3-5), there have also been developed different types of housing on street networks with different characteristics. Wang (2002, quoted in Liu, Dijst & Geertman, 2014), identified five typologies of residential communities in Shanghai (see Figure 3-6): traditional communities, work-unit communities, lower-priced commercial communities, high-priced commercial communities[40] and marginalized communities.

[40] To clarify, the lower-priced and the high-priced commercial communities refer to housing compounds developed by real estate companies.

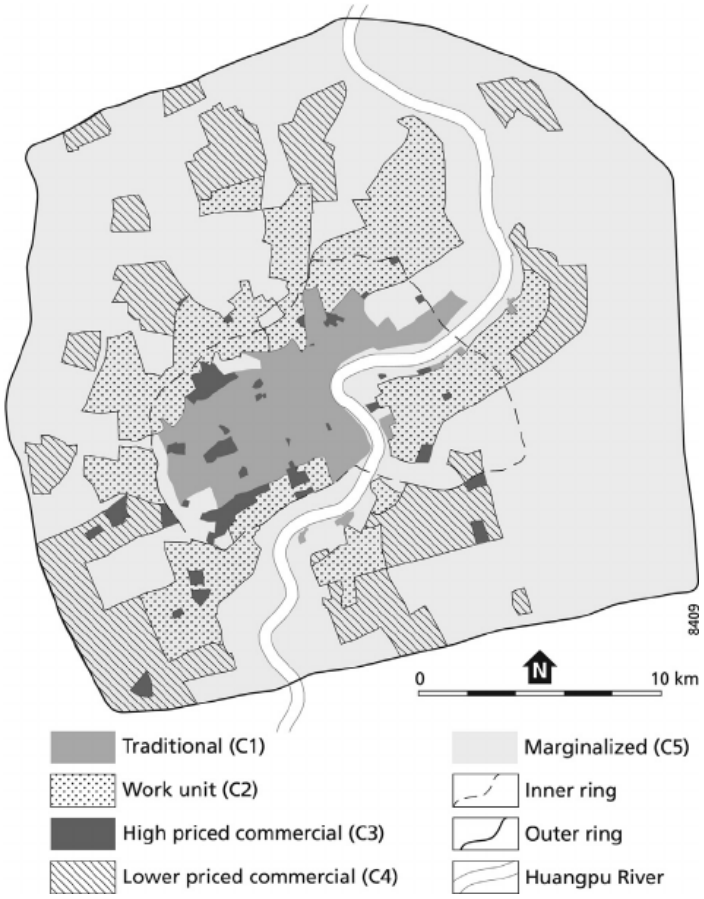

Figure 3-6: Types of residential areas in Shanghai Central City. Source: Wang, 2002, found in Liu, Dijst & Geertman, 2014

Traditional housing in Shanghai is identified within the Old Town and within the areas of the former Concessions (see Liu, Dijst &Geertman, 2014; Shanghai Street Design Guidelines, 2016). Once the Foreign Concessions were established in Shanghai, hybrid compounds of housing with family businesses were developed, known as *li* compounds (Liang, 2008). The *li* compound combined the vernacular (traditional Chinese characteristics) and the colonial (Western elements), it incorporated residential and commercial functions and accommodated elite, as well as lower-class residents (Liang, 2008). The alleys at the inside were called *long* and, later in the 20th century, the buildings in the *li* and aligned along the *long* were called *lilong* houses (Liang, 2008). The best of the li houses were organised on a courtyard layout and incorporated many decorative motifs (Liang, 2008), including the '*shikumen*' (stone-framed entrance). Although some of these houses became known as *Shikumen* houses (see Shanghai Street Design Guideline, 2016), the *shikumen* was actually the gate leading into a *li* compound (Liang, 2008). The *li* compound and the social space around it became a mark of Shanghai's identity (Liang, 2008). Furthermore, as the Shanghai Street Design Guidelines (2016) informed, the

traditional blocks of the *lilong* housing have dimensions ranging from 150m x 150m (mainly in the Old Town), to 300m x 150m (mainly in the Former Concessions). The urban fabric consists of buildings aligned to the street, with no setbacks[41], characterized by the presence of shops at the ground floors and by lanes of access to the buildings inside the blocks (see Figure 3-7).

However, there should be made a differentiation between the traditional housing from the Old Town, and the traditional housing in Former Concessions. In the Old Town, although the *lilong* compound is also encountered, many of the remaining housing units are older shanties, currently in deteriorating conditions. Furthermore, the traditional housing in the Old Town is aligned on very narrow and winding streets, built before 1840s on dimensions of carts, carriages and palanquins (Shanghai Street Design Guidelines, 2016). In contrast, in the Former Concessions, the street network has been developed later, during the concession period (based on European dimensioning). Furthermore, while the *li* compounds in the Former Concessions are more spacious and in better conditions than in the Old Town, in the French Concession, for instance, there are also individual houses with gardens, and many streets have been aligned with French plane trees (Schmitz, 2016).

Figure 3-7: Typical traditional *lilong* block, 230m x 140m; Source: Shanghai Street Design Guidelines, 2016

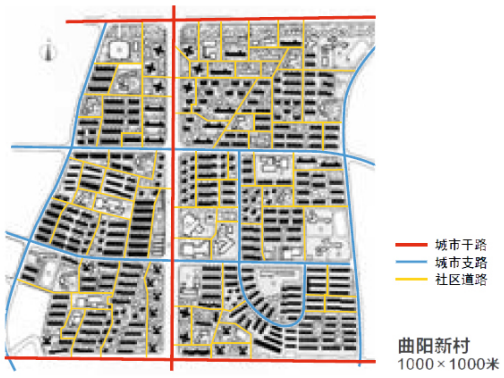

Figure 3-8: Typical work-unit area of 1000m x 1000m; Source: Shanghai Street Design Guidelines, 2016

Later on, during the period of the Maoist strategy, focused on industrialization, the architectural-diverse urban fabric was restructured to conform with the communist ideology (Chen, Y., 2007). Together with the growing number of people and the increasing density (Chen, Y., 2007), the living conditions deteriorated even more in the traditional housing units. However, another dominant

[41] The 'setback' refers to the distance from the street edge to the first row of buildings built on the same side of the street.

type of residential compounds has been developed, the workers' villages, also known as work-units or *Danwei* (单位, Shanghai Street Design Guidelines, 2016). The work-units have been built for the associated staff of developed industries, predominantly between1950s and 1980s, and were located around the inner ring (Liu, Dijst & Geertman, 2014). A work-unit residential area (see Figure 3-8) had around 3 or 4 hectares on a pre-established layout (Shanghai Street Design Guidelines, 2016). Built on larger blocks with fewer public streets, in order to achieve greater spatial efficiency, the work-units followed socialist city planning principles (Zhang L., 2016). The work units[42] could accommodate thousands of residents, and several work-units were served by a shopping centre, a hospital and other public buildings (Shanghai Street Design Guidelines, 2016).

Following the economic boom in the 1980s, Shanghai was under pressure to respond to the increasing demand for office space as well as for housing (Chen Y., 2007). The incomes of the residents increased and the people became interested in real estate and in buying their own houses, after the housing market was established in the 1980s (Chen Y., 2007). The main form of housing which emerged since the 1990s, after the housing marketization reform, is that of high-priced and lower-priced commercial communities, as identified by Liu, Dijst & Geertman (2014), referring to residential areas built by real estate companies. The high-priced commercial communities were developed mainly as renewal projects in the central areas of the city, on singular blocks, informed Liu, Dijst & Geertman, 2014. The lower-priced commercial communities were mainly located between the inner and the outer rings of Shanghai (Liu, Dijst & Geertman, 2014). These real estate housing compounds have been built as gated communities, with restricted access and high security, often associated with superblocks[43], which facilitated the easier administration of land for the developers. The superblocks are especially visible in the Pudong District of Shanghai, which has been redeveloped following international master-planning competitions, starting with the 1990s Lujiazui Masterplan (Chen Y., 2007).

[42] Concerning work units, the accent was placed on functionality, efficiency of costs and reduced times of construction.

[43] A superblock is a very large block, with either commercial or residential functions, barred to through traffic (Merriam-Webster Online Dictionary).

Another type of real-estate housing has been recently experimented in Shanghai (see KIC Village[44]), characterized by the continuous frontage to the street and by the higher density of the buildings, that can receive residential mixed-use, office and business functions (Shanghai Street Design Guidelines, 2016). Organized on 'open enclosure blocks' (Shanghai Street Design Guidelines, 2016) of 350m x 350m (divided into sub-blocks through allowing only access circulation), these are much smaller blocks than the usual work-units or gated communities, while the housing mixed with commercial spaces is inspired by Western models of development (see "Knowledge and Innovation Community", ULI, n.d.). Nevertheless, this type of development has not formed a mature fabric in the Shanghai context yet.

At last, marginalized communities are dispersed in the outer fringe of the central city, in the urban-rural continuum, consisting of urbanized villages, resettlement and informal housing (Liu, Dijst & Geertman, 2014). These communities provide cheap rental market, poor housing quality, low accessibility and low security. (Liu, Dijst & Geertman, 2014).

3.3.2.1 Determining the geographical area for street sites selection

Considering the morphological characterisation of the built areas in Shanghai, the area resumed for the street sites selection is the Inner Ring-Road area (see Figure 3-9) - a highly urbanized area, with mature urban fabric, where various types of housing and residential streets can be found.

[44] KIC Village is a part of the extended KIC (Knowledge and Innovation Community) project in Wujiaochang, Shanghai, developed by the real estate company Shui On Land, in collaboration with universities and the Shanghai Government. KIC Village is developed as a mixed-use area with residential units, among small retail, business and start-up companies, meant to replicate the University Avenue in Silicon Valley, USA. ("Knowledge and Innovation Community", ULI, n.d.)

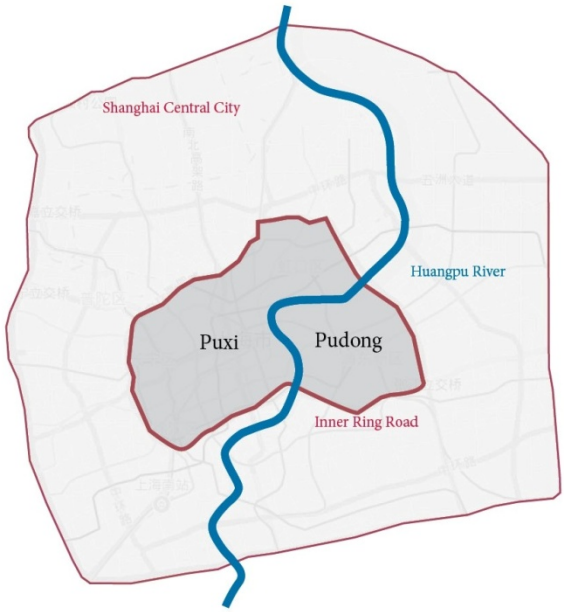

Figure 3-9: The Inner Ring Road Area within Shanghai Central City; Background support: Baidu Maps 2018

Furthermore, taking into account different sources illustrating the historical periods of development in Shanghai (Feng, 2014; Henriot, 2006; Henriot, 2009; Henriot, 2010; Liu, Dijst & Geertman, 2014; Macpherson, 1994; Sha et al., 2014), I have drawn the simplified boundaries of the areas developed in different historical periods within the Inner Ring Road, with their specific housing typologies and morphological characteristics of the street network (see Figure 3-10).

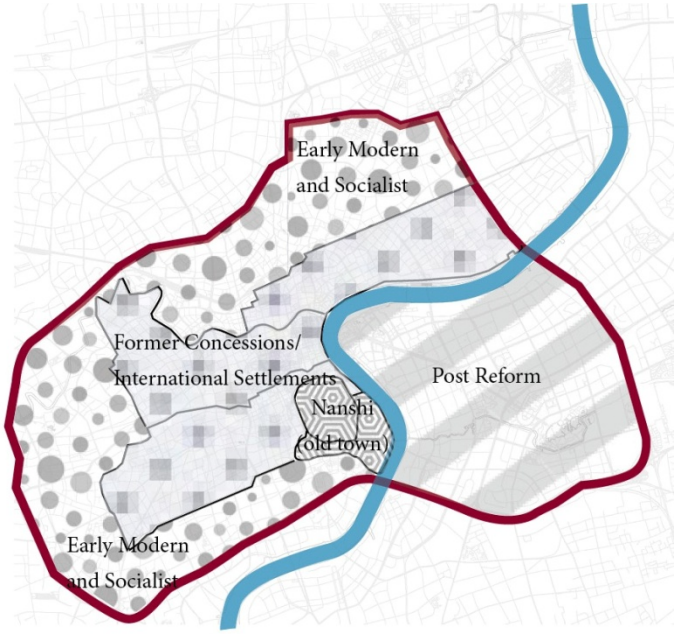

Figure 3-10: Areas developed in different historical periods within the inner ring road of Shanghai

A first determined area is the Old Town (Nanshi), with traditional housing that has been initially constructed before 1840s, on streets that are very dense and narrow, forming very short blocks. A second determined area is represented by the Former Concessions, with traditional housing developed between 1841-1937, built on narrow streets and short blocks. A third area has been determined around the Inner Ring Road, developed predominantly in the Early Modern and the Socialist period (1937-1978), with work-units, built on wider roads and larger blocks than the previously built areas. A fourth determined area is represented by the area within the Inner Ring Road of Pudong. This area encompasses more recently developed compounds by the real estate market, which have largely replaced the marginalized communities (see Figure 3-6), and have been built in the Post-Reform period (after 1978). Although within this area there are also remaining work-units, the area is overall characterized by superblocks, separated by very wide arterial roads.

Within the four areas determined based on the historical period of formation, and their associated morphological characteristics, I deducted the following categories of streets, considered for this study (see Figure 3-11):

S streets: Residential Streets which are very narrow and organized on very short blocks in traditional housing areas in the Old Town;

M streets: Residential Streets which are narrow and organized on short blocks in traditional areas in Former Concessions;

L Streets: Residential Streets with wider roadways, organized on large blocks, bordered predominantly by work-units developed in the Socialist period, although there might also be remaining housing units from the Early Modern period as well as newer insertions of real-estate-developed compounds;

XL Streets: Residential Streets with very wide roadways on superblocks, bordered predominantly by real-estate developed compounds in the Post-Reform period, although remaining work-units are also encountered.

The simplified S, M, L, XL[45] denominations are used to make reference to the different morphological characteristics of the streets and to the areas to which they belong.

[45] A similar framework of S, M, L, XL (small, medium, large, extra-large) elements in the city arranged according to their scale, has been previously used in the book of Koolhaas, Mau & Werlemann (1998), referring to urban projects and essays.

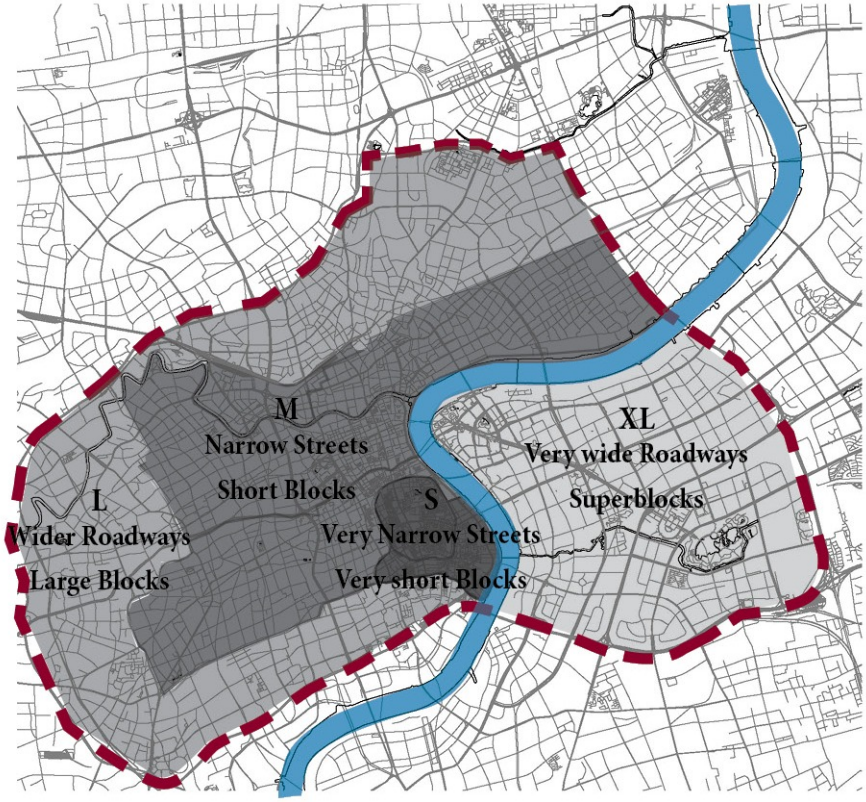

Figure 3-11: Streets and block types within the inner ring-road area. Map support: AutoCAD road base map, Liu, 2014

3.3.3 Selecting residential street segments in S, M, L, XL areas

As Chow (2014) identified, the traditional principle of organising commercial spaces on the north-south oriented streets in Shanghai (mainly influenced by the flow of ancient water canals and the southern orientation of the buildings), and the predominant residential function on east-west oriented streets has made little impact in contemporary times.

Furthermore, the Shanghai Street Design Guidelines (2016) categorized the streets bordered predominantly by residential functions mixed with small and medium-size retail and commercial services as 'living and service streets' (生活服务街道, *shēnghuó fúwù jiēdào*). However, the Guidelines (2016) also presented examples of streets bordered by residential buildings with no commercial spaces categorized as 'traffic-oriented streets' (交通性街道, *jiāotōng xìng jiēdào*), or with special street trees categorized as 'landscape and leisure streets'

(景观休闲街道，*jǐngguān xiūxián jiēdào*). To avoid any confusion, this study simply analyses ‘residential streets’ that are bordered by housing buildings on more than 60% of their frontage length, presenting or not small and medium-sized commercial functions, with or without street trees.

Furthermore, for advancing with the street sites selection, streets bordered on both sides by residential blocks have been filtered. This step was needed because, approaching the core of the city within the Inner Ring Road, many blocks had full commercial functions at the time of the study. Therefore, closely considering the location of the residential areas within the Inner Ring Road area and the street network, there have been determined four sub-areas with S, M, L, XL features (Figure 3-12) that would facilitate the selection of parallel residential streets for comparative analyses. The progressive variation from the very short S blocks to XL superblocks, from the higher mix of uses in the traditional S and M areas to mono-functional blocks in the L and XL areas is also visible as presented in Figure 3-12)

The geographical proximity of the four sub-areas was considered advantageous, however this was not a selection criterion. Nevertheless, being adjacent, the S, M, L, XL sub-areas (Figure 3-12) were influenced in a similar manner by major elements in the city, such as: the river (Huangpu), major circulation arteries (North-South Elevated Road; Century Avenue), large green and sports centres (Shanghai Stadium, Century Park).

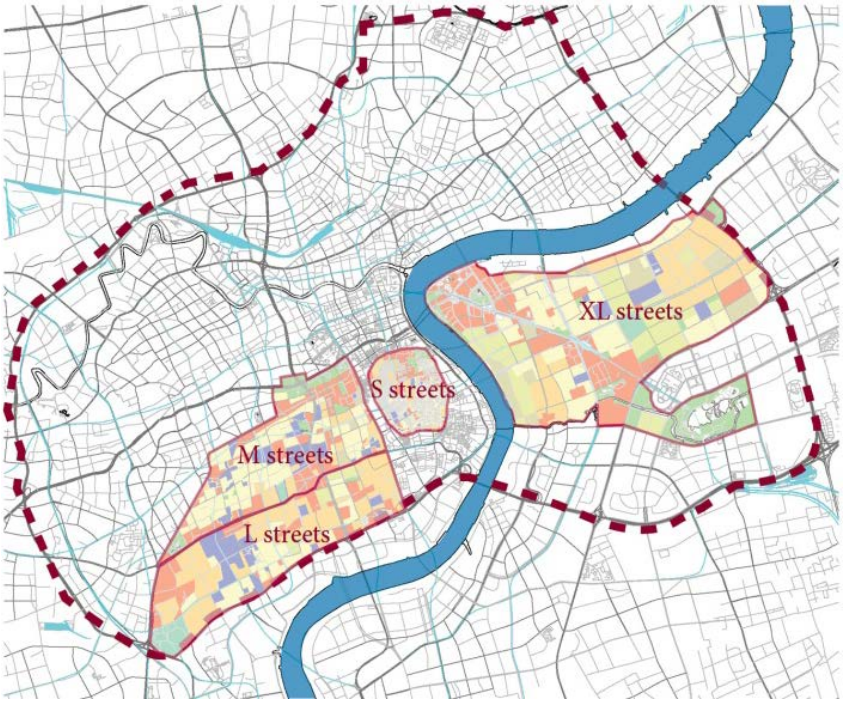

Figure 3-12: Sub-areas with representative S, M, L, XL streets; Map support: Liu, 2014

For each of S, M, L, XL sub-areas determined for further analysis, land-use diagrams have been drawn to guide the selection of residential streets (see Figure 3-13, Figure 3-15, Figure 3-17, Figure 3-19). In this manner, the streets bordered by residential blocks on both sides have been selected for further observations and for counting traffic volumes (see Figure 3-14, Figure 3-16, Figure 3-18, Figure 3-20). The landuse diagrams are based on initial observations and on the information retrieved from Baidu Maps 2016 and from AutoNavi Map Data 2015 installed on Apple Ipad.

Selecting S streets for further analysis

At the north of Fuxing East Road (复兴东路, *Fuxing Dong Lu*), cutting through the Old Town on the east-west direction (Figure 3-13, Figure 3-14), the traditional residential areas have been widely replaced by high-rise[46] apartments in gated communities, or by commercial and business functions around Yuyuan Garden (豫园, *Yuyuan*). For advancing the selection process of the S streets, I focused on the south part of the Old Town, where original residential units built over 100 years ago were still in place. The streets selected for further observation are shown in Figure 3-14.

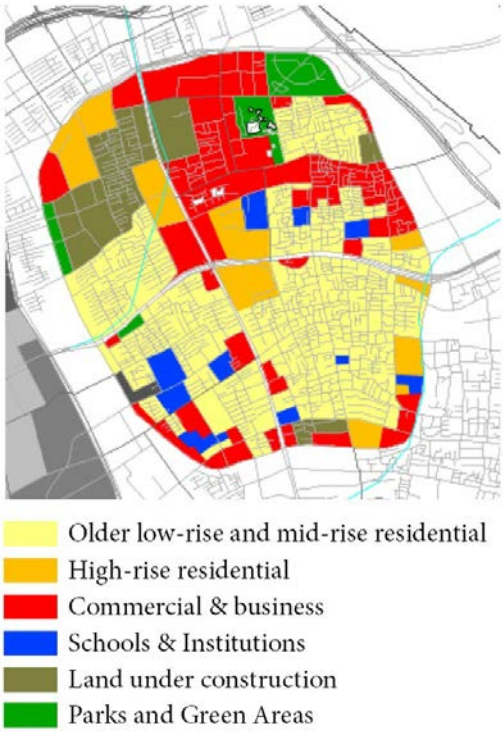

Figure 3-13: Landuse in subarea with representative S streets

Figure 3-14: Residential S streets selected for further analysis

Selecting M streets for further analysis

Of the entire Concession area, the sub-area determined with M residential streets belonged to the French Concession, which included a higher number of residential plots compared to the former British and American Settlements, where commercial and business land-uses dominated. Although even in the former French

[46] In this study, a 'high-rise' building refers to a building of more than 10 floors above ground; a 'mid-rise' building refers to a building of 6 to 10 floors above ground; 'low-rise' building referes to a building of up to 5 floors above ground.

Concession many of the *li* compounds have been going through renewal operations and urban fabric replacements, there have still been identified residential streets with preserved traditional characteristics, which have been selected for further observations (Figure 3-15 and Figure 3-16).

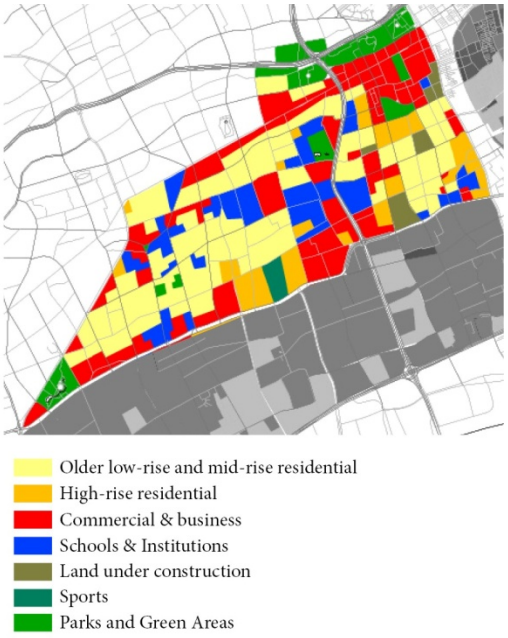

Figure 3-15: Landuse in subarea with representative M streets

Figure 3-16: Residential M streets selected for further analysis

Selecting L streets for further analysis

Advancing with the selection process for the L streets, I focused on the residential areas situated between Zhaojiabang Road and the Inner Ring Road (see Figure 3-17 and Figure 3-18), on the Puxi side of Shanghai. This area had predominant residential functions in work-unit compounds, although some of the plots have been replaced with more recently real-estate-developed communities in gated compounds. Additionally, of the entire area developed predominantly in the Early Modern and Socialist periods within the Inner Ring Road (presented in Figure 3-10, Figure 3-11) in this sub-area there have been identified more possibilities for having sets of parallel residential streets characteristic for the L category.

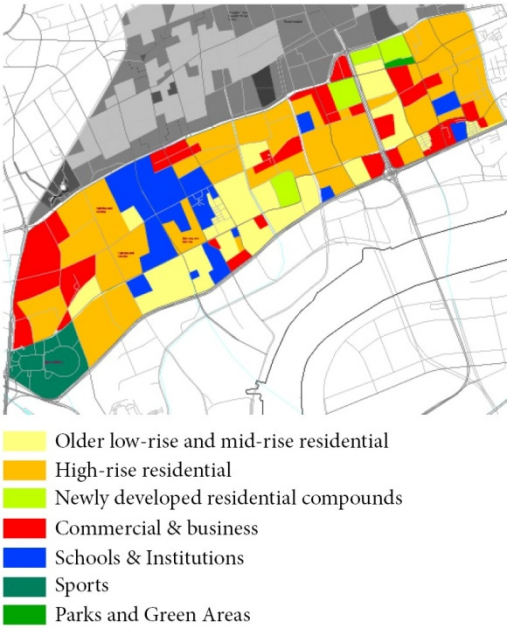

Figure 3-17: Landuse in subarea with representative L streets

Figure 3-18: Residential L streets selected for further analysis

Selecting XL streets for further analysis

Advancing with the selection process for the XL streets, I focused on the sub-area situated between Huangpu River and Middle Yanggao Road, at the North of Century Park, as it represented a more mature urban fabric in a highly urbanised area, compared to the areas at the South of Century Park, with a more suburban character (see Figure 3-19 and Figure 3-20). Across the real-estate-developed communities in gated compounds and the remaining work-units, there have been identified parallel residential streets with XL characteristics, which have been considered for further analysis (see Figure 3-20).

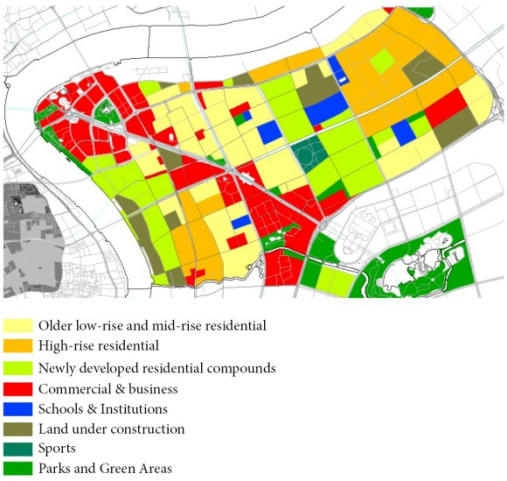

Figure 3-19: Landuse in subarea with representative XL street

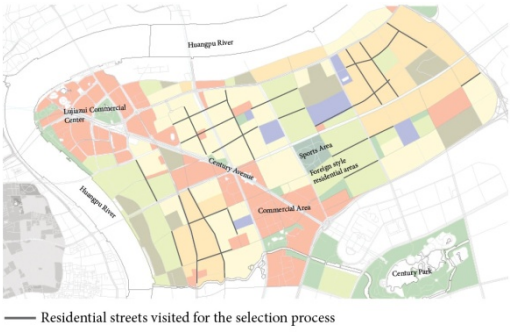

Figure 3-20: Residential XL streets selected for further analysis

3.3.4 Selecting streets based on their traffic volumes

In the previous stage, there have been selected streets of both east-west and north-south orientation, as the main aim was to identify streets with predominant residential functions. In this stage, the selected streets are filtered according to their traffic volumes, since the traffic volumes inventory has been used as a convenient quantitative method when differentiating residential streets for liveable streets studies (see Appleyard and Lintell, 1972; Appleyard, 1980; Bosselmann et al., 1999; Sanders, 2013). The aim is to identify sets of streets with similar physical characteristics, that are parallel to each other and have different traffic volumes.

The typical Chinese hierarchical categorization of streets is also valid for the case of Shanghai, with each defined category of roads having a recommended redline[47] width and a recommended average speed, as seen in Table 3-1 (Shanghai Street Design Guideline, 2016). The terms used for roads and streets according to maps and direction boards in China are: '*dàdào'* for avenue, '*lù*' for road, '*jiē*' for street and '*nòng*' for lane, alley. This research looked mainly at public roads named '*lu'* and when necessary at '*jie'* (narrower streets with usually less circulation, but that allow vehicular access), that define urban blocks and have motorized traffic.

Table 3-1 Redline widths and average speeds for different road categories in Shanghai; Source: Shanghai Street Design Guidelines, 2016

Road grade	Average speed	Recommended red line width	Example in Shanghai
快速路Expressway (High-speed road)	60-80 km / h	50-70m	Zhongshan North Road
主干路Main Road (Arterial road/Major arterial road)	50-60 km / h	40-55m	Hongqiao Road
次干路 Road (Sub-arterial road/Minor arterial road)	40-50 km / h	24-36m	Nanjing West Road
支路Access Road (Local Road/ Collector)	<=30 km / h	<=24m	Panyu Road

At first, residential streets have been considered according to segments divided by two intersections. Dividing segments based on maximum lengths (as in the study of Clifton et al., 2007) was not considered a necessity in this study; more important was to consider the segments as bordered by entire blocks with specific morphological characteristics, reflected also in the block dimensions. Next, only on the segments bordered on both sides by predominant residential functions, there has

[47] The term 'redline' stands for the demarcation line between the land of public use (of streets and roads) and the land of private use (of land lots), as commonly used in Chinese architectural and urban planning offices.

been conducted traffic volumes counting in August 2016, during three weekdays, at unfixed times, between 10am and 5:30pm. The traffic volumes have been recorded with the Traffic Survey application installed on a smartphone Motorola Moto G, 2nd Generation. With the Traffic Survey application, the vehicles could be counted under the following categories: 'Car', 'Moto', 'Bus', 'Bike', 'LCV'(light commercial vehicles), 'LGV'(light goods vehicles), 'HGV'(heavy goods vehicles), 'Other'.

For calculating traffic volumes, I used the Passenger Car Equivalent (PCE) metric, which is used in traffic engineering. The PCE metric, sometimes referred to as PCU (Passenger Car Unit) is most often used for calculating the traffic flow rate on highways (Ajuha, 2007), but studies on liveable streets have also employed it (see for instance Sanders et al., 2015). The PCE value represents the impact on traffic of a mode of transport, compared to a single car, for which the PCE value has been established at 1 (Ajuha, 2007; Regional Freight Strategy, Oregon Metro, 2018; "Traffic Modelling Guidelines", Transport for London, 2010). The attributed PCE values to different types of vehicles usually vary depending on the traffic composition, on the geometric design of roads, and on other traffic conditions.

In order to simplify the traffic calculation for this comparative analysis, I combined several categories of vehicles into more major categories, resulting into finally attributed PCE values as following: 1 for Cars (C); 0.3 for Motorcycles and Bicycles, including e-Bikes[48] (M+Bi); 3 for Buses and Goods Vehicles (Bu+Gv); 0.5 for Other vehicles (O).

The PCE values have been attributed by weighting the different values given in other street studies. For instance, the "Traffic Modelling Guidelines"(2010) attributed a value of 0.4 for motorcycles and of 0.2 for pedal cycle. Considering that in Shanghai most of the two-wheelers were e-bikes and scooters at the time of the study, a value of 0.3 has been set. This also resonated with the PCE values of 0.28, 0.33 and other value variations given for bikes in urban intersections in China by Wang, Feng & Liang (2008, quoted in Metkari, Budhkar & Maurya, 2012).

For buses, the "Traffic Modelling Guidelines"(2010) attributed values of 2.0 or 3.2, depending on whether they were articulated or not. Furthermore, Molina et al. (1987) recommended a PCE value of 3.7 for heavy trucks and of 1.7 for light trucks on arterial streets, while Cruz-Casas (2007) recommended a PCE value of 1.8 for

[48] e-Bikes are bikes that can be powered by electricity.

small trucks, 2.2 for medium trucks and 2.8 for large trucks. In this research, the PCE value for buses together with other commercial or goods vehicles has been set at a convenient value of 3 and calculations have been made accordingly.

In the category of 'Other' vehicles, there have been included improvised vehicles, rickshaws and other three-wheelers. Saha et al. (2009, quoted in Metkari, Budhkar & Maurya, 2012) recommended a PCE value of 0.86 for the motorized rickshaws at a saturated intersection in Dhaka, Bangladesh. As the Shanghai streets were not dominated by motorized rickshaws such as in Dhaka, but there were more tricycles and other improvised man-powered and electric vehicles, this study considered a rounded PCE value of 0.5 for this category of vehicles.

The number of vehicles counted in 5 minute-intervals have been multiplied with their PCE values and the cumulated result has been multiplied by 12 to finally obtain the traffic volumes in PCE/hour[49], as in the formula below:

PCE/5 min = [C*1 + (M+Bi)*0.3 + (Bu+Gv)*3 + O*0.5]

PCE/h = PCE/5 min *12

Where:
PCE = personal car equivalent (vehicle equivalent)
C = number of cars
M= number of motorcycles
Bi = number of bikes (including bicycles and electric bikes)
Bu = number of buses
Gv = number of all the commercial and goods vehicles (LCV+LGV+HGV)
O = number of other vehicles (three-wheeled vehicles, rickshaws, improvised vehicles)

A full record of the traffic counts has been compiled into an Excel file for all the observed street segments in the S, M, L, XL areas, and is presented in Appendix B1, according to the numbers given to the segments in Figure 3-21, Figure 3-22, Figure 3-23, Figure 3-24. The approximate ranges of the traffic volumes for each of the categories of streets can be seen in Table 3-2.

In Appleyard's (1981) research in San Francisco, the three parallel streets with 200 vehicles per hour, 550 vehicles per hour and 900 vehicles per hour, were respectively labelled as the 'light', 'moderate' and 'heavy' traffic streets. In this study, the traffic volumes are categorized as 'low', 'medium' and 'high'. The streets

[49] Assuming the vehicles to be distributed binomially, the error would be about square root n. For example, for n = 30, the error would be about 5.5., so the compounded hourly figure is 360 + or – 66, i.e. between 300 and 420 vehicles per hour. Nevertheless, although the square root error can alter the total PCE/h as explained above, this study used a simplified formula to give comparative traffic indications.

selected by Appleyard (1980) had two or three lanes of traffic and are comparable in size with the M streets in this research (see Table 3-2).

Table 3-2: Traffic volume labels for S, M, L and XL streets

Labels based on traffic volumes	S streets	M streets	L streets	XL streets
"low"	<60 PCE/h	<600 PCE/h	<600 PCE/h	<900 PCE/h
"medium"	60 -100 PCE/h	600-1200 PCE/h	600-1500 PCE/h	900-1500 PCE/h
"high"	>100 PCE/h	>1200 PCE/h	>1500 PCE/h	>1500 PCE/h

The determined sets of three parallel street segments based on the traffic volumes counted are presented in Figure 3-21, Figure 3-22, Figure 3-23, Figure 3-24, according to the S, M, L, XL sub-areas.

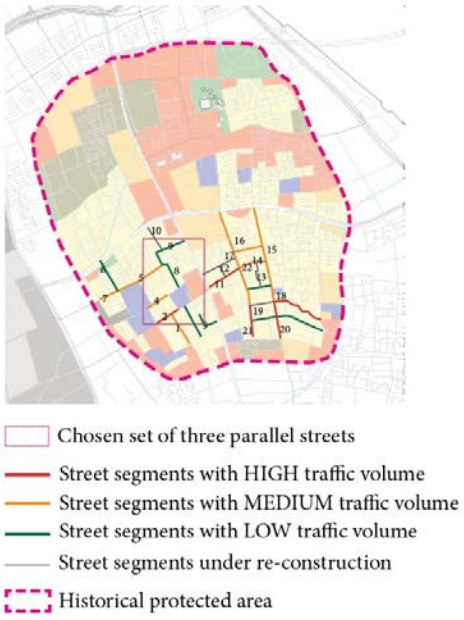

Figure 3-21: S streets and traffic volume counts

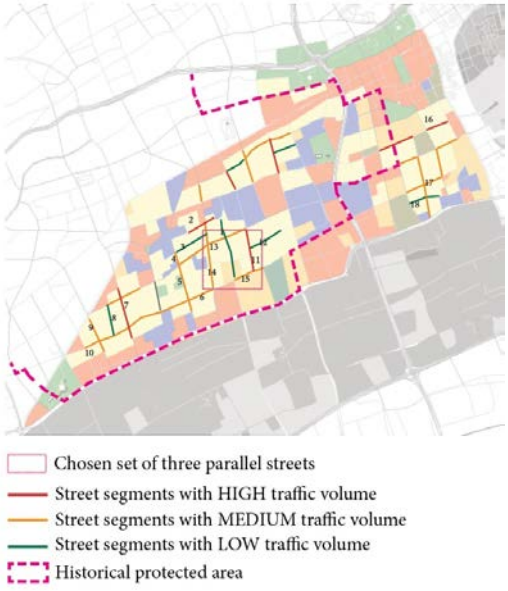

Figure 3-22: M streets and traffic volume counts

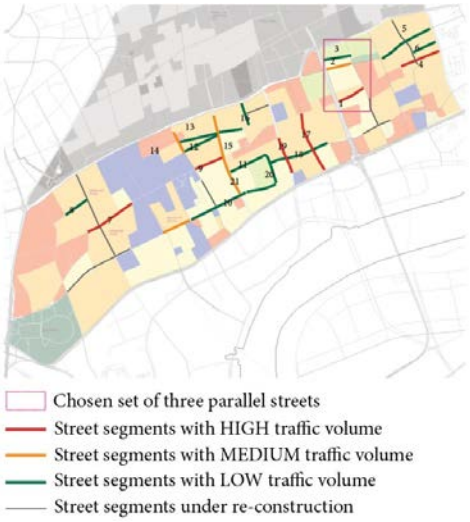

Figure 3-23: L streets and traffic volume counts

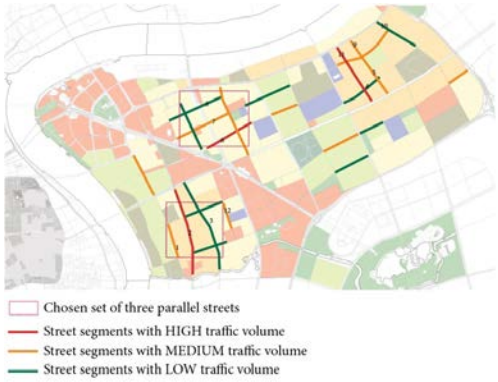

Figure 3-24: XL streets and traffic volume counts

3.3.5 Socio-demographic characteristics of inhabitants in the streets selection process

For more consistent analyses among parallel street segments, the aim was to have comparable classes of people inhabiting the bordering residential areas. For this, it has been considered that residential areas with different morphological characteristics (see Section 3.3.2) were serviced by different categories of facilities and were generally inhabited by people belonging to different social classes (Liu, Dijst & Geertman, 2014).

As Liu, Dijst & Geertman (2014) informed, if the traditional housing has not been renovated, the related facilities and the quality of the traditional residential areas remained poor. However "*the central location and abundant services make these communities quite lively and convenient*" (Liu, Dijst & Geertman, 2014, p.180). Furthermore, the traditional housing (in the S and M areas in this study) was generally administered as public housing available for rent (Li & Wu, 2008, quoted in Liu, Dijst & Geertman, 2014). Along the determined S segments in this study, there were predominantly non-renovated housing units, inhabited by poor and very poor social classes. The newer insertions were inhabited by poor or middle classes.

On the determined M segments, most of the housing buildings have kept their original features, and although some renovation programs have been conducted by the government, there was no significant alteration brought to the housing conditions. The traditional housing units were inhabited by poor and middle classes,

while the few newer inserted buildings were inhabited by the middle or even upper-middle classes.

On the determined L segments, in the few remaining work-units and other affordable housing units, the inhabitants belonged to the poor and middle classes people, while the redeveloped residential blocks with modern features were inhabited by the middle, upper-middle and even higher classes.

Within the XL area, two sites with parallel streets suitable for this study have been identified: one set of streets bordered by remaining work-units, inhabited uniformly by lower and middle classes of people, at the North from Century Avenue; another set of streets bordered predominantly by newer insertions of higher-priced and lower-priced real-estate-developed communities and by few remaining work-units, inhabited by a mixture of lower, middle, upper-middle and higher classes of people, at the South from Century Avenue.

The work units are usually tenured as purchased public housing, but they offer acceptable living conditions, with fundamental services provided (Liu, Dijst & Geertman, 2014). The real-estate developed housing, especially in the higher-priced, but also the lower-priced communities, is usually well-equipped with services and facilities (Liu, Dijst & Geertman, 2014), and available for purchase from real-estate companies.

3.3.6 Summarized description of fifteen selected street sites

To epitomize the selection process, at first, the Shanghai street network has been analysed and areas with different physical and morphological characteristics have been mapped within the Inner Ring Road. Land-use maps have been produced based on the existing situation and residential areas with different typologies of streets have been highlighted. I have visited more than 12 residential streets for inspection within each of the four determined areas with “S”, “M”, “L”, “XL” streets. Small insertions of commercial points, small offices, cafés, community or creative centres have been accepted on residential streets, in cumulated percentages of less than 40% of the entire street frontage. Traffic volumes have been counted on weekdays and sets of three parallel streets labelled with ‘low’, ‘medium’ and ‘high’ traffic volumes have been selected. The final selection of street sites has been done after considering comparative analyses of the social and income classes of people inhabiting the parallel streets.

Figure 3-25: Selected S, M, L, XL1 and XL2 street sets; Satellite image: Baidu Maps, 2016

The selected “S” streets in the Old Town are: Xicangqiao Street(西仓桥街), Wenmiao Road(文庙路) and Penglai Road(蓬莱路), as seen in Figure 3-25. All the three S streets are access streets, however, Xicangqiao Street, as the name indicates (‘street’ vs. ‘road’; 街‘jie’ vs. 路‘lu’) had very limited, but allowed motorized circulation. For Wenmiao Road, an exception has been made in the fact that the

selected segment extended a little beyond the first intersection (with a very narrow street), until the road made a 90º turn to the north. The segment has been chosen in this manner to have a length and a morphology comparable to the other two segments in the set – Xicangqiao Street and Penglai Road – thus including an insertion of a mid-rise residential building, among the traditional housing. In this way, a better comparison was possible among the three segments. The people that inhabited the three residential S streets belonged mainly to the lower social classes, except for few inserted buildings inhabited by middle-classes.

The selected "M" streets in the former French Concession are: Jiashan Road(嘉善路), Xiangyang Road(襄阳南路) and Shaanxi South Road (陕西南路), as shown in Figure 3-25. The three segments had the profiles of access roads, however Shaanxi South Road functioned as a secondary road. The people that inhabited the buildings on the M streets belonged mainly to the poor and middle classes, with a few exceptions of newly inserted buildings inhabited by upper-middle classes.

The selected "L" streets shown in Figure 3-25 are: Mengzi West Road(蒙自西路), Liyuan Road (丽园路) and Xietu Road(斜土路). The L types of streets with their characteristic street fronts are very common in many other Chinese cities, dominated by high-rise and medium-rise working units, despite some newer insertions of foreign-style real-estate-developed compounds. Xietu Road is a secondary road, while Liyuan Road and Mengzi Road are access roads. The people that inhabited these three L streets belong mainly to the middle classes, however there are also inhabitants of the lower and the higher social classes.

Finally, I have selected two sets of parallel "XL" streets. Besides the different morphology of the residential compounds adjacent to the streets (residential work-units vs. newer real-estate-developed communities in gated compounds), another reason that determined the selection of two XL sets was the difference in the socio-economic characteristics of the inhabiting people. The "XL1" set of streets includes the segments of Qixia Road(栖霞路), Rushan Road(乳山路) and Shangcheng Road(商城路), all bordered predominantly by mid-rise residential work-units. Compared to the L segments, which were also partially bordered by work-units, the XL1 segments had wider roadway widths, higher traffic volumes recorded and were organized on superblocks. Qixia Road was still an access road, while Rushan Road

and Shangcheng Road had the profiles of secondary roads. The people inhabiting the XL1 set belonged to the lower and middle social classes.

The “XL2” set of streets includes the segments of Pucheng Road(浦城路), Nanquan Road(南泉路) and Pudong South Road(浦东南路). In the selection process, the single-time counting of traffic volumes at unfixed hours indicated Nanquan Road as the ‘low’ traffic volume and ‘Pucheng Road’ as the ‘medium’ traffic volume. However, based on the later recordings at similar times of the day, Nanquan Road resulted to have higher traffic volumes than Pucheng Road. With relatively close values of the traffic volumes recorded, the two segments could have been considered both with ‘medium’ traffic volumes. However, as the research design has categorized each three parallel segments into low, medium, high traffic volumes, the labels have been given accordingly. Pucheng Road had the role of access road, although constructed with a wide profile, suitable for a secondary road. Pucheng Road was predominantly bordered by real-estate-developed housing in gated communities. Nanquan Road had the profile of an access road, but functioning as a secondary road, bordered by work-units. Pudong South Road was a main road, with a much wider profile than the other two roads in the set, however it was considered suitable for the study since it was bordered by residential buildings on more than 60% of the segment’s length. The residential buildings along Pudong South Road have been developed as mid-rise and high-rise work-units, but also as real-estate housing in gated communities. All these features made the XL2 set not as unitary as the other S, M, L sets, another reason for which the alternative set of XL1 streets has been selected.

Table 3-3: Summarised characteristics of S, M, L, XL1 and XL2 streets; Images Source: Baidu 360° pictures, 2015

	Name of the street	Historical period of development	Land-use diversity	Social class	Traffic volume	Road Grade	Picture
selected S segments	Xicangqiao Street	Old Town + socialist insertion	Predominant residential	lower class	50 PCE/h	Access Road, ocassionally for cars	
	Wenmiao Road	Old Town + socialist insertion	Predominant residential + commercial at ground floors	lower class	76 PCE/h	Access Road, ocassionally for cars	
	Penglai Road	Old Town + socialist insertion + post-reform insertion	Predominant residential + commercial at ground floors	lower and middle class	340 PCE/h	Access Road/ Collector	
selected M segments	Jiashan Road	French Concession period + post-reform insertion	Predominant residential + commercial at ground floors	lower and middle class	370 PCE/h	Access Road/ Collector	
	Xiangyang Road	French Concession period + socialist insertion	Predominant residential + commercial at ground floors	lower and middle class	702 PCE/h	Access Road/ Collector	
	Shaanxi South Road	French Concession period + post-reform insertion	Predominant residential + commercial at ground floors	lower and middle class	1404 PCE/h	Secondary Road	
selected L segments	Mengzi Road	socialist + post-reform reconstructions	Predominant residential	lower, middle and upper-class	92 PCE/h	Access Road/ Collector	
	Liyuan Road	socialist + post-reform reconstructions	Predominant residential + some commercial at ground floors	lower, middle and upper-class	753 PCE/h	Access Road/ Collector	
	Xietu Road	socialist + post-reform reconstructions	Predominant residential + commercial & banks at ground floors	lower, middle and upper-class	1573 PCE/h	Secondary Road	
selected XL1 segments	Qixia Road	socialist period	Predominant residential + commercial at ground floors	lower and middle class	195 PCE/h	Access Road	
	Rushan Road	socialist period	Predominant residential + commercial at ground floors	lower and middle class	850 PCE/h	Secondary Road	
	Shangcheng Road	socialist period + post-reform insertion	Predominant residential + some commercial at ground floors	lower and middle class	1608 PCE/h	Secondary Road	
selected XL2 segments	Pucheng Road	post-reform reconstructions	Predominant residential	middle and upper-class	1010 PCE/h	Access Road/ Collector	
	Nanquan Road	socialist period + post-reform	Predominant residential + some commercial at ground floors	middle-class	684 PCE/h	Secondary Road	
	Pudong South Road	socialist period + post-reform	Predominant residential + few banks and commercial spaces	lower, middle and upper-class	3189 PCE/h	Main Road	

Throughout the dissertation, when denominating the selected segments there has been kept the same names of the streets, however, the reference is made mainly to the street segments in study and not to the entire streets. More than this, the reference to each segment as a ‘street’ and not as a ‘road’ was preferred because this research has considered multiple aspects related to the social role and to the living functions of the street, beyond solely the circulation role.

3.4 Samples of Informants

3.4.1 Sample of professionals for the first stage of the study

The targeted population for the first stage of the study was represented by three categories of actors interested in liveability issues in cities (as determined through the literature review, see Chapter 2, sections 2.4, 2.5): academic researchers, politicians and practitioners. Through quota sampling it was aimed to receive answers from enough respondents in each predefined category of actors, until a good number of responses was gathered for making inferences through analysis.

However, among the 95 complete answers obtained to the self-administered survey, the respondents were predominantly practicing architects and planners. In order to increase the number of respondents from the other categories of actors, semi-structured interviews have been formulated. Yet, politicians and governmental representatives in China refused to take part to the study. Further on, the study on how liveability is practiced in Shanghai continued with 6 academics and researchers from fields related to liveability (social sciences, architecture and planning, public policies) and with 6 developers, active consultants from well-known real-estate companies in Shanghai. Academics have been selected based on a purposive sample, generated from the examination of liveability articles in China (published after the year 2000) and from recommendations received from the initially selected academics, resulting in a snowball sampling. The selected developers represented a convenience sample generated during a half-day visit to a newly built real-estate residential complex, organized by Urban Land Institute (ULI) Shanghai.

3.4.2 Sample of residents

The residents sample included inhabitants of the S, M, L, XL1, XL2 street segments, that were over 18 years old at the time of the interview. The subjects were selected based on their accessibility, resulting in a convenience sample. The main condition was to find people that lived on the selected segments at the time of the study. At first it was aimed to find respondents that were passing, standing or sitting on the edge of the street, so they can have clear visibility and a fresh memory about the street. If not enough respondents were found on the street, then it was aimed to

find respondents within the residential compounds aligned on each segment, ideally closer to the entrance gates from the segment.

3.4.2.1 Sample of residents to semi-structured interviews

There has been planned a minimum of 3 semi-structured interviews per street segment, with the aim of extracting the main themes of discussion.

In total, 70 complete responses to the semi-structured interviews have been collected. Additionally, there were 14 partial responses, 13 responses from non-residents (either shop assistants or neighbours from the surrounding area) and 17 comments received from passers-by that didn't want to stop and participate to the interview. Adding all these, 114 discussions have been carried on field with local people. The total number of attempts for completing at least one drawing questions was received from 49 respondents. The number of interviews collected on each street segment can be seen in Table 3-4.

Table 3-4: Collected responses to semi-structured interviews on each street

Set	Traffic Volume	Selected streets	Complete responses	Other responses (partial, from non-residents, and comments)
S	low	Xicangqiao Street	8	6
	medium	Wenmiao Road	6	8
	high	Penglai Road	7	8
M	low	Jiashan Road	3	3
	medium	Xiangyang Road	3	1
	high	Shaanxi South Road	3	3
L	low	Mengzi West Road	5	2
	medium	Liyuan Road	4	1
	high	Xietu Road	3	3
XL1	low	Qixia Road	6	0
	medium	Rushan Road	6	4
	high	Shangcheng Road	4	2
XL2	low	Pucheng Road	4	1
	medium	Nanquan Road	4	2
	high	Pudong South Road	4	0
Total responses			70	44

3.4.2.2 Sample of residents to structured interviews

A minimum of 10 complete answers per segment was aimed to complement the answers received from the semi-structured interviews and to be able to make analyses and inferences.

As visible in Table 3-5, 219 structured interviews have been collected in total. Following a detailed filtration, 172 interviews have been used for analysis. The reasons for not including the remaining 48 interviews were: having incomplete responses (in which more than half of the non-drawing questions have not been answered); having answers from respondents that were living out of the selected segments (some of whom only carried businesses on the segment). Nevertheless, the responses which have been used for analysis revealed a good amount of information, and the data saturation was reached.

Table 3-5: Collected responses to structured interviews on each street

Set	Street	Total responses	Complete responses
S	Xicangqiao Street	11	10
	Wenmiao Road	12	12
	Penglai Road	10	10
M	Jiashan Road	14	13
	Xiangyang Road	19	10
	Shaanxi South Road	13	10
L	Mengzi West Road	14	10
	Liyuan Road	12	12
	Xietu Road	19	12
XL1	Qixia Road	23	15
	Rushan Road	15	14
	Shangcheng Road	18	13
XL2	Pucheng Road	12	10
	Nanquan Road	14	10
	Pudong South Road	13	11
Total:		219	172

3.5 Data Collection

3.5.1 Data collection to the study with professionals

3.5.1.1 The online, self-administered survey on liveability in Shanghai

Data was initially collected through an online, self-administered, anonymous survey questionnaire. It is only at the end of the survey that professionals were asked to leave their contact details if they wished to be contacted for further explanations. There were 13 questions in the survey, including open-ended questions and closed

questions, such as: dichotomous questions, filter questions and Likert-type[50] questions. The questions targeted answers concerning the way liveability is practiced and conceived by Shanghai professionals, along with answers concerning factors that are important to consider for liveability at the level of the streets (see schedule in Appendix B2).

The online survey was built on the LimeSurvey platform, which could allow receiving answers typed with Chinese characters, and could be accessed in Mainland China without any firewall block. The survey was activated in June 2016, and the survey link was sent through personalized emails to academics, governmental organizations and practitioners in Shanghai. It has additionally been posted on social media platforms such as WeChat[51] and LinkedIn[52]. A letter of introduction accompanied the email, explaining the purpose of the research and what was expected from the participants. Reminders have been sent several times, in order to ensure the maximum response rate possible. After a month and a half since the survey activation, no new relevant information was emerging and it has been concluded that data saturation has been reached. The online survey has been closed with 96 full answers and 77 partial answers. Of the 96 full answers, one was identified as straight-lining and it was removed when performing analyses.

3.5.1.2 Semi-structured Interviews with professionals

The semi-structured interviews with academics (see schedule in Appendix B6) concerned the conceptualization of liveability in the context of China and in Shanghai, as well as factors considered important for studying liveability at the level of the street in Shanghai. Additional questions were formulated asking recommendations for academic papers considered valuable for liveability in Chinese cities. With academics that were not permanently based in Shanghai, the interview took place via email or Skype, while, with academics that were based in Shanghai, the interview took place face-to-face. For analysis, there have been considered 2 emailing interviews, 1 Skype interview, and 3 face-to-face interviews. The

[50] The Likert-type scale measures the opinions of the respondents based on a fixed choice response format on linear levels of agreement or disagreement (Bowling, 1997; Burns, & Grove, 1997, quoted in Mourougan & Sethuraman, 2017).

[51] WeChat is a Chinese social media mobile app.

[52] LinkedIn is a business and employment-oriented service operating via websites and mobile apps, mainly used for professional networking.

interviews that have been carried out face-to-face or on Skype typically lasted 30 minutes, while on email there have been 2 to 4 email exchanges.

The interviews with the 6 developers in Shanghai were concerned with the way they practiced liveability and their understanding of the concept at the level of the street (see schedule in Appendix B7). The interviews have been conducted face-to-face, typically lasting 20 minutes.

3.5.2 Data collection to the interviews with residents

Being needed to communicate to the residents in their local language, it was necessary to conduct both the semi-structured and the structured interviews with the help of native research assistants. Furthermore, the defined topics of inquiry (answering to the research sub-questions) and the interview questions have been formulated and translated into Mandarin Chinese prior to the interviews, with the help of Chinese assistants. Additionally, the wording of the interview questions in Chinese (especially for the structured interviews) has been verified by a Chinese urban planner[53].

3.5.2.1 Data collection to semi-structured interviews with residents

The semi-structured interview investigated what constituted a good street for the residents in Shanghai in their everyday life. The defined topics that guided the inquiry for the semi-structured schedule included: the length of time living on the street; being content or not with living on the street; activities and social relations on the street; how should the street ideally be in the views of the residents. The semi-structured interviews conducted on all the fifteen selected streets followed the list of guiding topics, but they did not consist in a predetermined set of questions with a particular formulation and order of words. The aim was to give respondents the opportunity to speak on their own about their experience of living concerning liveability issues. The assistants were encouraged to ask questions naturally, based on the course of the discussion, with a smooth and logical transition from a topic to another and in this manner, a conversational flow has been maintained. Still, careful attention has been given to the approach of the subjects and to the technique of questioning. The first sentence in the interview introduced the street as the main theme of the interview.

[53] Han Liang (韩亮), Urban Planner, working in Shanghai (former work colleague at XWHO-RECON).

For each semi-structured interview conducted, I have also been present, from a supervising position. I was the "*observing, thinking researcher at the scene of the action*" (Babbie, 2014, p. 331). In this way, it was possible to make notes on what was going on during the interview, of the attitudes of the interviewees, of the facial expressions and of the contextual particularities.

When collecting the first round of semi-structured interviews on the S streets together with Assistant 1[54], most of the respondents were non-permanent residents and shop assistants, and the answers received were more descriptive concerning the historical background of the streets. After conducting this first set of interviews, I decided to add more specific liveability-related questions at the end of the schedule. These questions concerned: safety perception, social issues, traffic and transport issues, living facilities, living conditions and the overall living environment. Besides these specific questions, three additional drawing questions were added to the interview. The drawing questions were central to Appleyard & Lintell's study (1972) and other 'liveable streets' revisited studies (Sanders, 2013; Hart & Parkhurst, 2011; Sauter & Heuttenmoser, 2008). The drawing questions asked participants to: 1. draw on maps the territory where they felt comfortable as in their own home; 2. indicate the areas where their friends and acquaintances lived on the same segment; 3. make a drawing on a blank page of how they pictured their street. The drawing questions were presented to the subjects only towards the end of the interview, because the natural course of discussion based on the main themes of inquiry was considered more important. The drawing questions had therefore secondary importance and did not influence whether the interview was considered complete or not. The main scope of the drawing questions (which have been customized with maps of each street segment) was to see whether the street was perceived as a physical and psychological barrier when forming social relations, as it has been previously theorized in North American and European countries among other liveable streets studies (see Appleyard & Lintell, 1972; Appleyard, 1981). It was a good moment to add the secondary topics to the interview schedule, as Assistant 1 was not available anymore

[54] Assistant 1 was Ling ShiJia (凌世佳), Urban and Landscape Planner, working in Shanghai (former work colleague at SBA GmbH).

for interviews, and the interviews had to be conducted with the help of Assistant 2[55]. A second round of interviews on the S segments was therefore carried out with the help of Assistant 2, additionally aiming to receive responses mainly from permanent residents. With the help of Assistant 2 there have also been carried the rest of the interviews on the M, L, XL1 and XL2 segments. In the end, the answers obtained from the interviews conducted with the help of both assistants on the S segments have been summed and analysed together.

The interviews have been conducted at weekends, between November 2016 and February 2017, avoiding the period of the Chinese Spring Festival, when the largest yearly human migrations take place for around two to four weeks (Embury-Dennis for The Independent, 2017).

As noticed from the first interviews conducted on the selected segments, people didn't have the patience for a 'live' translation, so most of the discussion had to be carried out by the assistants. Some of the subjects responded in a more rushed way, busy with other activities, and in this manner, the interviewing time had to be limited to 5 minutes. However, with other respondents, the conversation was extended to more than 20-30 minutes, while sometimes the discussion had to be skilfully re-directed towards the main topics of the interviews. The answers took the form of a story, a narrative.

The steps followed when conducting the interviews were:

- Introduction and approaching subjects: done by the assistants mainly, and occasionally by myself.
- During the interviews, short key notes have been taken by the assistants, while I recorded some quotes in pinyin[56], as well as expressions and the general attitude of the respondents.
- Immediately after each interview[57], the assistant debriefed in detail the response of the participants and full notes have been taken directly into English.
- Based on the notes from the field, edited transcripts have been written.

[55] Assistant 2 was Zhao Chengshuai (赵承帅,Allan), Master Student in Urban Planning at Tongji University, Shanghai.

[56] Pinyin is the official romanization system for Standard Chinese language.

[57] There have been only two exceptions when the debriefing took place after two interviews have been carried one after the other, due to the availability of the respondents.

3.5.2.2 Data collection to structured interviews with residents

The schedule of the structured interviews with residents included open-ended questions, filter questions and questions based on the level of measurement, using Likert-type response scales. The open-ended questions were occasionally supplemented by prompts. The interview consisted of 23 main questions (see Appendix B9), translated with the help of native Chinese professionals. A brief introduction accompanied the interview sheets, explaining the purpose of the research and what was expected from the participants. It was essential to find respondents that lived on the selected segments; therefore, an '*Intro question'* filtered the residents from the potential visitors. Further in the interview, the exact limits of the street segments have been mentioned, for the participants to have a clear image of the street segment they were enquired about. Similar to the schedule of the semi-structured interview, the schedule of the structured interview targeted answers concerning for how long the respondents lived on the segment, whether there was anything that bothered them about living on the respective segment, and how they would improve their streets if they could.

Other questions enquired more specifically, through prompts and Likert scales, about safety perception, about traffic and noise conditions, about living facilities, about the preferred meetup places of respondents, about the numbers of friends, relatives and acquaintances on the street. There have also been included the three drawing questions, similar to the semi-structured interviews (see Appendices B8 and B9). However, to the structured interviews, there have also been added demographic questions concerning the age of the respondents, the income level, the education level, the origins, and whether the respondents had any business activity on the street. Other demographic questions of secondary importance concerned the house ownership and the number of people in the household. Besides, the wording of some of the questions in the structured interview has been improved, compared to the semi-structured interview (see Appendices B8 and B9).

A first part of the structured interviews has been conducted on all the fifteen streets with the help of undergraduate students[58], during an organized field-trip day in Shanghai. The number of the interviews collected with the help of undergraduate students has been further supplemented by structured interviews conducted with the

[58] Undergraduate students in the Architecture Department, year 3, Xi'an Jiaotong-Liverpool University (XJTLU)

help of Assistant 2 on all the fifteen streets. The interviews took place at both weekdays and weekends during April-May 2017. The interviews typically lasted 15 to 20 minutes, however when receiving more elaborated answers, the interviewing time was up to 40 minutes.

3.5.3 Data collection to systematic observations on streets

Employing systematic observation, data has been collected through several research tools: physical surveys, behavioural mapping, photographic documentation, and counting. The way the research tools have been employed is summarised in Table 3-6 and detailed below.

Table 3-6: Research tools to conduct systematic observations on street sites

Research tools employed	Description
Physical surveys	*Audit of physical characteristics:* Non-time dependent observation sheet, completed for all the 15 street segments selected.
	Consultation of maps and diagrams drawing: Document analysis and contextual analysis of the areas surrounding the selected segments
Behavioural mapping (mappings of human activities and behaviours)	Time and weather dependent; During autumn, winter, spring, summer; At weekdays and at weekend; Observation time: 15 minutes during the intervals 9:30-11:30am; 1:00-4:00pm;
Photographic documentation	At weekdays and at weekends on defined intervals: 7:00-9:30am; 9:30-11:30am; 11:30am-1:30pm; 1:30pm-4:00pm; 4:00pm-7:30pm; 7:30pm-10:00pm Photomontage of serial pictures of street frontages
Counting	*Counting pedestrians:* During 5-minute intervals, between 9:30am-11:30am or 1:00am-4:00pm, at weekday and at weekend.
	Counting vehicles: Counting motorized and non-motorized vehicles during 5-minute intervals at different times of the day, during the week.

Physical Surveys

As part of physical surveys, extended audits of physical characteristics of all selected streets have been completed following on-site observations (see audit form in Appendix B11), while available maps and archives, for Shanghai and specifically for the site of the selected segments, have been additionally consulted.

The extended audit of physical characteristics was based on non-time dependent observations, however it has generally been completed between 9:00am-6:00pm, to facilitate the detailed recording of physical characteristics at daylight. To

complete the extended audit forms, it took 30-40 minutes per street segment. The format of the audit sheet is based on the one Sanders (2013) used for evaluating liveable streets in Hanoi, Vietnam and on the PEDS observation form developed by Clifton et al. (2007). The observation sheet for this study has been adapted to the context of Shanghai and it can be seen in Appendix B11.

The maps and satellite images consulted have been extracted from Baidu Maps 2015, 2016, 2017, 2018, Google Maps 2017, Apple AutoNavi Map Data 2015, AutoCAD base-maps obtained from various architectural offices (including CAD drawings of the Shanghai Old Town Historical and Cultural Area Protection Plan). These have been used in order to: determine services, amenities and public transport stops in the proximity of the segments, determine the contour of the buildings and the building densities, identify green spaces within the residential compounds and parks in the proximity of the selected segments. Space Syntax analyses have additionally been consulted in order to determine the accessibility and connectivity of the streets.

Behavioural Mapping

Behavioural mappings have been conducted on all the fifteen selected segments at eight times of observation, during all the four seasons (autumn, winter, spring and summer), at weekdays and at weekends. Major weather features (such as temperature, precipitations) have also been considered when mapping the activities and behaviours, seen as external conditions that can influence a larger number of people at the same time. On maps, human activities taking place on the street have been marked differently, using symbols. The time of observation and of behavioural mapping was of 15 minutes per segment, walking from the beginning to the end of the street segment, or cycling with slow speeds on the longer segments.

The instruments used for conducting mappings of activities and behaviours were: extracted site maps, pen and paper. The pre-set time intervals for the mappings of activities and behaviours were 9:30am-11:30am and 1:00pm-4:00pm, which have been decided based on preliminary visits to streets. The chosen time intervals were considered uneventful periods, that did not have much differences in the intensity of activities: avoiding the morning rush hour, the lunch time, the end of the school day, and the evening rush. The decision for having a consistent interval of time for conducting the detailed observations allowed comparisons between the street segments with regards to the people's activities and behaviours.

Photographic documentation

Photographs capturing human activities, business activities and physical characteristics of the selected segments have been taken throughout the entire observation period. A more detailed photographic documentation organized at different time intervals on weekdays and weekends has been conducted to reveal the human activities that took place on the streets throughout an entire day. The defined time intervals for photography were: 7:00-9:30am; 9:30-11:30am; 11:30am-1:30pm; 1:30pm-4:00pm; 4:00pm-7:30pm; 7:30pm-10:00pm. Additionally, there have been taken serial pictures of frontages on each of the selected segments. Occasionally, Baidu 360° pictures 2015 have been used to reveal wider views of roadways.

Counting

At the times when behavioural mappings have been conducted, the number of passing pedestrians on the sidewalks have also been counted during 5-minute intervals. Since the observation and mapping times were set between 9:30am-11:30am and 1:00pm-4:00pm, at weekday and at weekends, the pedestrians counting took place within the same time periods.

Furthermore, although motorized and non-motorized vehicles on the streets have been counted in the phase of sites selection, another round of traffic counting was considered necessary to determine whether there was a significant fluctuation of traffic volumes on the selected segments at different times of the day. The set time periods for traffic counting were: 8:00am-9:30am to capture the morning rush of travelling from home to work; 9:30am-11:30am or 1:00pm-4:00pm which was considered a flat period of time with no major transit peaks; 5:30pm-7:00pm to capture the evening rush of travelling from work to home. Different categories of motorized and non-motorized vehicles (similar to those considered during the site selection phase, see section 3.3.4, page 87) have been counted within 5-minute intervals in the established time periods, during weekdays.

3.6 Data Analysis

3.6.1 Analysis of data obtained from informants

3.6.1.1 Software used for the analysis of data obtained from informants

All the qualitative data have been coded and analysed with QSR Nvivo 10, in which transcripts from semi-structured and structured interviews (compiled in

Microsoft (MS) Word 2007 and MS Excel 2007), have been imported as internal documents. The responses have been arranged on nodes and themes, for which a range of queries has been used to explore patterns, to perform word tags and text searches. Additionally, characteristics of expert informants to semi-structured interviews (referring to their nationality and to the interview types conducted with each participant) and of resident informants to semi-structured interviews (referring to their age category and to the interview setting and circumstances) have been compiled and analysed in MS Excel 2007 or MS Word 2007.

The quantitative data from the structured interviews have been analysed with IBM SPSS 24. The data has been summarized through descriptive statistics, showing the distribution and the spread of answers through tables and bar graphs. The degree of internal consistency for some of the Likert-type questions has been tested using Chronbach's Alpha test. The degree of independence between the resulting frequencies in the defined categories for several questions has been tested using Chi-Square test. In the self-administered online survey of professionals, the means of the percentages of agreement with the extracted qualities of liveability have been compared using a t-test.

Furthermore, the responses to the drawing questions in the (semi-structured and structured) interviews with residents have been synthesized, with a representation as close as possible to the original representation of the respondents in Adobe InDesign CS5.5. The responses have been overlapped and have been concluded for each segment, based on whether the responses were received during semi-structured interviews or during structured interviews.

3.6.1.2 Data analysis process for the study with Shanghai professionals

The answers received in Mandarin Chinese to the self-administered online survey have been translated into English with the help of a native Chinese assistant.

Additionally, to the Shanghai professionals that responded to the semi-structured interviews there have been attributed codes in the analysis, as follows:

- From A1 to A6 –are codes given to responding academics;
- From D1 to D6 –are codes given to responding developers.

3.6.1.3 Data analysis process for the interviews with residents

Translating the interview responses into English has been done with the help of native Chinese assistants, in the same day in which the interviews have been conducted.

For transcribing the interviews with the residents, I was entirely responsible. One reason was that no other financial possibilities were available for this step in the study. Additionally, it has been recognized the advantage of transcribing the qualitative interviews in the fact that data analysis could already begin (Babbie, 2014), and, by re-reading and re-writing the transcripts, several ideas emerged.

In the edited transcripts, non-relevant phrases, repetitions or interjections have been omitted, unless considered very important in the expression of a particular idea. Similarly, shorter sentences have been combined to make the transcription more readable. Excerpts from the native language of the residents have been kept in the translation to give more authenticity and to express better the real meaning of words. Attention has been given to not decontextualize the interviews while transcribing and to not miss anything about what the larger conversation was about, as Brinkmann and Kvale (2015) suggested.

Concerning the semi-structured interviews, besides the predefined themes of inquiry, several other themes emerged. Overall, emphasis has been placed on the answers received from permanent residents. However, when comments or responses from non-residents added interesting, useful facts or extra details to a situation, they have been included in the report.

Furthermore, besides the interpretation of the resposes' meaning, interview quotes have been used to "*serve as basic facts*" (Brinkmann & Kvale, 2015, p.303).

Coding respondents to semi-structured interviews with residents

Codes have been attributed to the respondents to the semi-structured interviews as follows: 'initial of the area in which the interviews took place (S, M, L, XL1, XL2)' 'underscore' 'name of the street' 'underscore' 'code of the respondent' (see Figure 3-26).

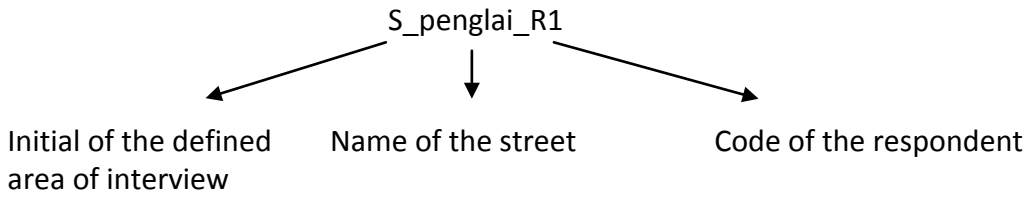

Figure 3-26: Codes attributed to respondents to the semi-structured interviews

The attributed codes differ as explained below:

- From R1 to R8 are complete responses received from residents (most of the questions in the interview schedule have been answered, and only 2 or 3 questions remained unanswered);
- From P1 to P6 are partial responses received from residents (at least 2 questions have been answered, but more than 2 or 3 questions remained unanswered);
- From C1 to C3 are comments received on 1 or 2 questions asked from either residents or people passing by the street;
- From n.R1 to n.R6 are codes given to other interviewed people, not living on the selected streets, such as shop owners or people living in the near-by area.

Coding respondents to structured interviews with residents

Only complete answers to the structured interviews have been further used for comparative analyses on streets. A structured interview was considered complete when less than 4 questions, besides the drawing questions, have remained unanswered.

For all the complete structured interviews, codes have been attributed to the respondents, based on the street names where the respondents lived. The codes appear in the form of: 'initial of the street where the interview took place', 'another

letter from the street name', 'attributed number', as it can be seen in the example below:

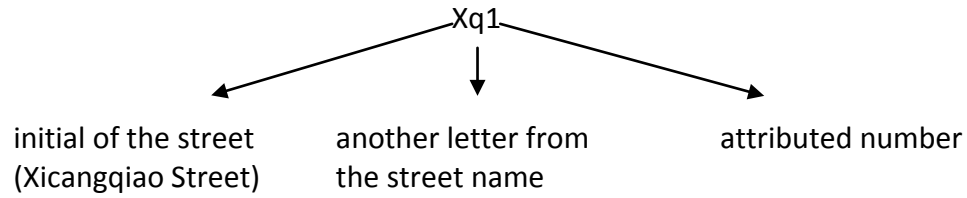

Figure 3-27: Codes attributed to respondents to the structured interviews

The codes of the respondents to the structured interviews can be easily differentiated from those of the respondents to the semi-structured interviews.

3.6.2 Analysis of data obtained from systematic observations

Physical Surveys

The results of the physical surveys have been interpreted through diagrams and tables. The data resulting from audits has been compiled in tables in MS Excel 2007, and presented according to the assessed indicators.

Data extracted from maps and archives has been interpreted on diagrams, centred on areas of 1sqkm around the selected sets of streets or on areal stripes along each selected segment of 30m-50m from the street axis. Using AutoCAD 2015, the building outlines have been drawn and the building densities have been calculated (based on the rasterized buildings following Baidu 2017 and Google 2017 satellite maps), while explanatory diagrams have been drawn using Adobe InDesign CS5.5.

Behavioural Mappings

Hand-drawn behavioural mappings have been scanned and traced in Adobe InDesign CS5.5. Afterwards, the electronic versions with activities recorded at all the eight times of observation on each street have been overlapped using the same software (Adobe InDesign CS5.5), revealing the areas that accommodated the highest amount of human activities on the streets.

Photography

The photographic documentation has been organized on folders based on the intervals of predefined times and based on whether they have been taken at weekday or at weekend. The selected pictures have been grouped for illustrating the street

activities in Adobe InDesign CS5.5. The serial pictures have been used for photomontages (see Appendix 3) realized with Adobe InDesign CS5.5.

Counting

For all the recorded numbers of pedestrians passing-by in 5-minute intervals (at weekdays or at weekend, during all the four seasons), the arithmetic mean has been calculated. For calculating the volumes of pedestrians passing per hour, the arithmetic mean of the pedestrian volumes passing in 5 minutes have been multiplied by 12[59].

For calculating the traffic volumes in PCE/h (at different times of the day), the same formula used during the sites selection process has been used, for which calculations have been realized in MS Excel 2007 (see Section 3.3.4, page 88).

3.7 Ethical Considerations

3.7.1 Data confidentiality

Considering research ethics, it is important to mention that data collection had a low incidence of personal identifiers. Through the online, self-administered survey and semi-structured interviews with Shanghai professionals, there have simply been recorded the way the respondents conceptualized liveability and the way they practiced liveability in projects. Through semi-structured and structured interviews with residents, there have simply been recorded the people's perceptions regarding the space of the street and of the immediate surroundings. Confidentiality has been maintained and data is not shared until the conclusions are published. For all the private files, there has been provided reasonable care and attention.

Through the on-site, systematic observations (behavioural mapping, photography, counting), there have been recorded activities of people on the street, without any personal identifiers. The photographic documentation targeted only what was happening on the public space of the street. Concerning people that showed discomfort with photography being taken, including them in pictures has been avoided.

[59] As similarly explained for calculations of motorized traffic volumes, an error in the arithmetic mean of total pedestrian flows would appear. Nevertheless, this study uses a simplified formula for indicative flows of pedestrians that allow comparisons among selected streets.

3.7.2 Informed consent

All the participants to the online survey and to the interviews have been informed that they can choose whether to participate or not in this study. The participants were informed that they could withdraw from the study at any moment. The informed consent has been read or sent for online reading in its entirety, using the local language, making the subjects have a clear understanding about the later use and the possible publication of the results. Explanations that the self-administered survey as well as the structured and semi-structured interviews were anonymous and confidential have been included. The names of the respondents have been altered according to a coding system, in order to protect the privacy of the respondents.

3.7.3 Compensation

Financial compensation for the time of the respondents that took part to the study was considered impractical, as this research has been conducted mainly with personal funds. However, all the participants were reminded that their time could contribute significantly to the theories that can be derived based on this study. Additionally, to professional informants there has been promised feedback.

Furthermore, the assistants who helped over a longer period of time with conducting interviews with resident informants, as well as with translation (from Chinese to English) have been paid for their efforts.

3.8 Control of Bias

This section presents the possible instances of bias encountered in this research.

3.8.1 Informant bias

There can be potential issues with informant bias in the conducted surveys and interviews. In the first place, bias is possible due to confusion or misunderstanding. To eliminate this potential bias, the survey questions have been explained in detail to Shanghai professionals; similarly, the research assistants have been trained to explain in detail the questions that resident informants might not understand. Moreover, to the semi-structured interviews, the phrasing of some questions has been slightly adjusted during the course of research, to be better understood by resident informants or professional informants.

Secondly, bias is possible when respondents answer according to what they might assume the interviewer is searching for, as opposed to what they may truly feel about the question. To avoid this situation, the assistants have been trained to respond in a neutral manner to each statement and to not display agreement or disagreement with the respondents' answers. As Podsakoff, MacKenzie and Podsakoff (2012) recommended, the respondents were encouraged into self-expression by explaining how the information was going to be used, and by explaining that there were no incorrect answers to questions.

Thirdly, in studies that aim to understand people's perception in relation to different living environments, there is a potential bias in the fact that residents could adapt to the drawbacks of their environments, which could result in an underestimation of how different aspects of the built environment might affect liveability (see also Sanders, 2013). However, to alleviate this potential bias, there has been used precaution in the research design, employing a diversity of research tools (included to systematic observations) as well as larger samples of informants.

3.8.2 Informant sampling bias

As there were non-probability samples of informants in this study, I was aware that this might yield a non-representative sampling. To the initial quota sampling of professionals, resulting into having responses from a predominant category of actors, I increased the sample size, attempting to limit the bias, by enquiring as many other actors I found available. This has been done through a snowball sampling of academics, and through an additional convenience sampling of developers. By speaking to as many representatives as found available, the sampling bias was potentially controlled.

Similarly, by increasing the size of the convenience samples of residents, acquired through accessibility, I attempted to control the sampling bias. In this manner, the semi-structured interviews with a lower sample have been complemented by structured interviews with a larger sample, which included as many resident informants as found available.

3.8.3 Schedules bias

The questions to the self-administered survey and to the interviews (semi-structured and structured) have been carefully phrased, not to bias informants to answer in a particular way. The questions selection and prioritization in the self-administered survey and in the semi-structured and structured interviews have been done with the aim of answering directly to the research sub-questions. Procedural remedies have been applied, ensuring that the respondents had the ability to answer accurately to the questions asked through the self-administered survey and interviews, as Podsakoff et al. (2012) recommended: the schedules have been kept short, avoiding complicated syntax, defining unfamiliar terms and minimizing redundancies to the extent possible.

3.8.4 Interview assistants bias

The validity of the semi-structured and structured interviews with the residents depended also on the ability of the assistants to ask questions without leading responses. To eliminate the potential bias, the assistants have been trained before interviews and have been explained the purpose of the study. Guiding questions have been given to them in both English and Chinese. What is more, the semi-structured interviews were meant to open-up themes of inquiry to be further confirmed through structured interviews, which represented a good method of validating the answers.

Concerning the translations from Mandarin Chinese to English, explanations have been given to the assistants to translate responses almost word by word, and to present the meaning that was closest (least interpreted) to the answers of the subjects.

Assistant 1 and Assistant 2 are both native Chinese, with an educational background in urban studies. They have previously carried out questionnaires and interviews in China, in this way the training for conducting semi-structured interviews on residential streets for this study took place without difficulty, within 1 hour, in the first days of interviews. Other assisting architecture students have been trained for conducting structured interviews as part of their learning curriculum during a lecture of one hour, and during one additional hour of training during the day of interviews.

3.8.5 Researcher bias, verification and validation of data

The analysis and the interpretation of the results were meant to capture as objectively as possible the responses and the attitudes of the subjects. However, as a '*reflexive objectivity'* (Brinkmann & Kvale, 2015), I must acknowledge that personal experiences and memories of the people, as well as past discussions and situations encountered while living in Shanghai might have contributed in forming an opinion and might have had the slightest influence in the interpretation of data. Nevertheless, the aim set in the analysis and in the interpretation was to let the facts speak for themselves.

In transcribing the semi-structured interviews with professionals and with the residents, although the transcripts have been edited, the aim was to keep as much as possible the original meaning of the statements. To the semi-structured interviews with the residents, that have been conducted in Mandarin Chinese, consulting both the translation from the assistant interviewer and the notes taken in pinyin, have been considered as an additional validation method. Furthermore, when transcribing the answers to the open-ended questions in the structured interviews with the residents, the wording has been kept almost identical with the given answers, unless the answer elaborated other topics that were not directly related to the question, in which case it has been edited.

As Brinkmann and Kvale (2015) suggested for grounded theory, the validation in this study was not regarded as a control of the final product, but there have been continual checks on the trustworthiness of the findings throughout the entire research process. Thus, I applied validation methods and reflexivity throughout the entire research, not only concerning the data obtained from informants, but also the data obtained from systematic observations.

The aim of this research was to understand the concept of liveability. I did not possess any answer to my research questions prior to conducting the research.

3.9 Methodological Framework of Indicators for the study of Liveable Streets in Shanghai

The importance and applicability of the main attributes of liveability at the level of the street in Chinese contexts extracted through the review of literature (see Chapter 2, section 2.9, page 59), have been confirmed for the context of Shanghai by the professionals in this study (see Chapter 4, Table 4-1, page 135 and Table 4-3, page 140). What is more, the extracted liveability 'attributes' have been denominated as 'qualities' following the study with Shanghai professionals (see Chapter 4, section 4.5) and therefore include: the Local Humanized Environment; the Physical Facilities for Living and the Mix of Uses; the Local Economic Activities; Safety; Social Interaction and Public Life; Sense of Place and Belonging. Furthermore, to each quality of liveability, relevant factors and indicators to be assessed through the field study on selected street sites have been defined.

Compared to the way the liveability qualities have been named throughout the first stage of the study with Shanghai professionals, more specificity has been given to them in this stage, to reflect better the aspects that are important to be tested through the field study. In this regard, 'social interaction' has been articulated along with 'public life', to reflect also socio-demographic characteristics of the residents. 'Sense of place' has been articulated with a 'sense of belonging', which is more often used in the Chinese terminology. The 'physical facilities for living' have been considered together with the 'mix of uses', reflecting better the provision of services to residents. More than this, 'local' has been added to the 'humanized environment', and to the 'economic activities', to reflect better the scale of individual street sites.

The factors affecting the qualities of liveability on streets in Shanghai have been deduced from the highlighted variables in the study with Shanghai professionals (see Chapter 4, Table 4-3) and from the review of literature. Under each factor, indicators have been extracted from the Extensive Checklist of Liveability Attributes, Constructs and Indicators for empirical studies on liveability at the level of the streets compiled from the literature (see Chapter 2, Table 2-1). Additionally, for the decision concerning indicators to be assessed through the field study in Shanghai, there has also been considered what type of data was available in this context.

Indicators have been introduced as direct measurement is often not feasible for complex concepts such as liveability. Indicators that correlated high with each other have been grouped under defined factors. A factor represents an influence that contributes directly to the liveability qualities on streets in this study.

The more objective indicators in the Methodological Framework of Indicators have been assessed through systematic observations, while the more subjective indicators have been assessed through interviews with residents, as seen in Table 3-7.

Table 3-7: Methodological Framework of Qualities, Factors and Indicators to assess liveability on streets in Shanghai

METHODOLOGICAL FRAMEWORK of INDICATORS for LIVEABLE STREETS in SHANGHAI		
QUALITIES	FACTORS	INDICATORS
Local Humanized Environment 人文关怀	Accessibility and transport	*spatial accessibility / accessibility to public transport and to district services*
	The road attributes	*Intersections / lengths of segments (blocks) / roadway width / car lanes/ bike lanes/ directions / traffic composition / parking / obstructions/ roadway condition / traffic control devices / average speeds / volumes of traffic*
	The pedestrian environment	*pavement width / walkway condition / obstructions / street furniture / crossing aids / barriers + buffers / facilities for the disabled / lighting / green spaces along pavements / street trees / proportion of shaded pavement*
	Morphology and aesthetics of buildings and blocks	historical period of development */ setback / building heights / building height to street width ratio / linkage to the street (number of entrances) /lanes and alleys within blocks / building coverage / FAR / enclosure / complexity / transparency / human scale / landmarks /*
	Residents' perception of the built environment	**bothering issues about living on the street / improvements needed on the street / traffic issues**
Physical Facilities for Living and the Mix of Uses 生活设施与混合用途	Land uses, services and amenities	*uses, facilities and amenities on the segment / active ground floors /* **assessment of facilities and services**
	Green and open spaces	*green coverage / types of green spaces within residential compounds / parks in proximity*

METHODOLOGICAL FRAMEWORK of INDICATORS for LIVEABLE STREETS in SHANGHAI		
Local Economic Activities 当地商业活动	Businesses on the street	*economic profiles of businesses / social classes targeted by businesses / informal economic activities and ambulant vendors / illegal economic activities /* **residents involved in business activities on the street**
Safety (safety in living and from traffic) 安全性（交通安全和生活安全）	Correct use of the street space	*aggressive road users / the response to traffic rules*
	Security eyes on the street	*presence of security guards and policemen / security cameras*
	Perception of Safety	**safety perception (in living and from traffic) / allowing children to play on the street side**
Social Interaction and Public Life 邻里互动	Opportunities for interaction	*human activities observed on the street* / *outdoor (dining) tables and seats* / **friends and acquaintances** / **recurrence of activities and associated reasons (mentioned by residents)** /
	People on the street	*population density / numbers of pedestrians passing-by*
	Socio-demographic characteristics of residents	**length of time living on the street / age / origins / education level / income level / house ownership / number of people in the household**
Sense of Place and Belonging 地方归属感	The identity of the streetscape	*street distinctiveness / identity through perception senses /* **noise tolerance / memory of the place (picturing the street) / home territory (feeling at home) / meetup places for residents**
	Involvement of the community	*cleanliness and sanitation on the streets / local gatherings/*

**indicators assessed through the observation method*

** **indicators assessed through interviews with the residents**

Explanations on the choice of factors and indicators to be assessed through the field study under each of the Liveability Qualities are given in the sections below, with more details mentioned to some of the most complex factors or indicators.

3.9.1 Selected Indicators for assessing a Local Humanized Environment

As the meaning of 'humanized' or 'human-oriented' environment is very broad in the way the term is often used by Chinese scholars (see Wang, Zhu & Zhang, 2011; Zhao 2007), this study narrowed it down, giving it a more pragmatic meaning. Therefore, in this study, 'local humanized environment' refers to a space of comfort and good access to all the categories of people concerning the built environment around the street. The factors to be assessed under this liveability quality include the aspects highlighted by Shanghai professionals (see Chapter 4, Table 4-3) and are defined as: accessibility and transport; road attributes; the pedestrian environment; the morphology and aesthetics of the bordering buildings and blocks. The subjective side of this quality has been captured through the residents' perception of the built environment.

The ***Residents' Perception of the Built Environment*** includes indicators captured through discussions with residents: bothering issues about living adjacent to the selected streets; improvements needed to the space of the street from the residents' point of view; the perception of traffic issues on the selected streets.

The factor of ***Accessibility and Transport*** includes as indicators: the spatial accessibility (referring to the connectivity in the wider road network as extracted from Space Syntax analyses, see for instance Hillier, 2014); and accessibility to public transport and to district services around the selected streets.

To the ***Road Attributes***, there has been primarily considered the indicator of the traffic volumes, which was crucial in other liveable streets studies (see Appleyard & Lintell, 1972; Appleyard, 1981; Bosselmann et al., 1999; Sanders, 2013; Sauter & Heuttenmoser, 2008). Furthermore, indicators concerning the traffic composition and the speeds of vehicles have been included, also crucial in relation to liveability (see Dumbaugh, 2005). Other considered indicators are related to the roadway configuration and to distances (including intersection types, segment lengths which also reflect the blocks dimensions, roadway widths[60], number of car lanes, presence of bike lanes, directions of circulation, roadway condition, obstructions on roadways, parking spaces, traffic control devices). These indicators have also been assessed in

[60] In this study, the roadway width represents the calculated dimension of the transversal profile of the street designated for vehicular traffic (cars, buses, bikes), not including the pavement.

previous studies concerned with the overall environment of the streets (see for instance Clifton et al., 2007; Sanders, 2013).

Concerning the ***Pedestrian Environment***, the most important indicators considered were: pavement widths, street trees and green spaces along the pavement, shaded or sunny pavement portions, accessible seating and other street furniture, night lighting, crossing aids for pedestrians. In the literature, it has been demonstrated that these indicators affected considerably the overall pedestrian experience on the street (see Dumbaugh, 2015; Jacobs, A., 1995; Jacobs, J., 1961:1993; Mahmoudi et al., 2014; Whyte, 1980:2016). Other indicators considered suitable for framing the particularities of the pedestrian experience on Shanghai streets were: the walkway condition, obstructions on the walkway, barriers and buffers between roadways and walkways, facilities for the disabled (also assessed in the study of Sanders et al., 2015, for instance). For this study, the pavement materials, distances from curbs, and other details (such as, for instance, street bollards) were considered of a micro-scale and did not make the scope of this research.

The factor of ***Morphology and Aesthetics of Buildings and Blocks***[61] included, in the first place, the historical period of the built environment of the street. Inspired further from intangible urban design variables highlighted in the study of Ewing and Clemente (2013), some of whom have also been assessed in Asian studies (see for instance Mahmoudi et al., 2014), for this study in Shanghai, very important were considered: the enclosure, the complexity, the transparency, human scale, landmarks and the linkage to the street. Other considered indicators concerning the morphological features of the streets are: the building heights, the building setbacks, the building height to street width ratio, the lanes and alleys within blocks, the building coverage, the floor area ratio (FAR).

While some indicators included to the morphological factor, such as building heights and having lanes or alleys within blocks can be easily understood, other indicators require further explanations, as follows:

[61] An urban ‘block’ refers to the smallest area that is surrounded by streets in a city.

Concerning the *historical period of development*, even though accessing masterplans, detailed historical maps or archives in China is more difficult, the information could be deduced by looking at the buildings outline and by observing the architectural features (the buildings' shape, the construction style, the degree of ornamentation). Yet, the historical period of construction of the bordering buildings and blocks is given with approximation, since the poor level of façade maintenance and the high standardization of buildings did not always facilitate the exact association with a certain historical period. However, insights on the architectural and historical characteristics of the buildings were considered necessary as they can influence the overall ambiance on a street.

The *building height to street width ratio* has been calculated considering the width of the streets and the heights of the bordering buildings, based on the formula:

$$\text{Ratio} = \frac{(\text{Frontage Height on one side} + \text{Frontage Height on the other side})/2}{\text{Total Width between the two frontages}}$$

The *linkage to the street* is informed by the number of direct entrances to residential buildings or to residential compounds from the street.

The *building coverage* represents the percentage of the lot area that is covered by the building footprint area. It informs the building density.

The *Floor Area Ratio (FAR)* illustrated the intensity of building within the blocks bordering the streets. The FAR is a widely-used indicator in urban construction, representing the total built-up area reported to the lot area. The total built-up area has been calculated in this study as equivalent to the building footprint area multiplied by the number of floors, not considering the relatively small differences in the built areas of each floor. The simplified formula for the FAR estimation, as applied in this study can be seen below:

$$\text{FAR} = \frac{\text{Building footprint area x nr of floors}}{\text{Lot area}}$$

The *degree of enclosure* was considered of high importance in the context of China, as the transversal profiles of the streets have the tendency to become wider and wider. The bordering buildings have been considered the main elements delineating the degree of enclosure. Ewing and Clemente (2013) also included trees and walls as vertical elements for visually delineating the streets enclosure, however, for some of the streets in Shanghai, compared to the heights of the buildings, the walls or street trees did not always add much to the general sense of enclosure. The defined categories for the degree of enclosure in this study follow those given by Clifton et al. (2007), however the distances have been altered and adapted to the case of Shanghai:

Highly enclosed street space: the buildings lining the street are within 3 meters from the sidewalk (similar to the original study of Clifton et al., 2007) and there is a building height to street width ratio of approximately 1:2 (1 for the street width and 2 for the building height), or less;

Moderate enclosure: the view is partially enclosed by buildings, but there are portions unobstructed by buildings, with open views of more than 5m, and building height to street width ratio between 1:2 and 2:1;

Little or no enclosure: there are open views from the sidewalk, unobstructed by built elements on more than 10m (in the study of Clifton et al., 2007, the open view was set at only 5m in a Western context, but the streets in China are generally wider). It is a wide-open, unconstrained space, with a building height to street width ratio of 2:1 or larger.

The three defined categories of enclosure on Shanghai streets can also be spatially understood in plan from Figure 3-28, presenting the unobstructed spaces around streets (including green spaces and flat paved surfaces) in contrast with the built areas.

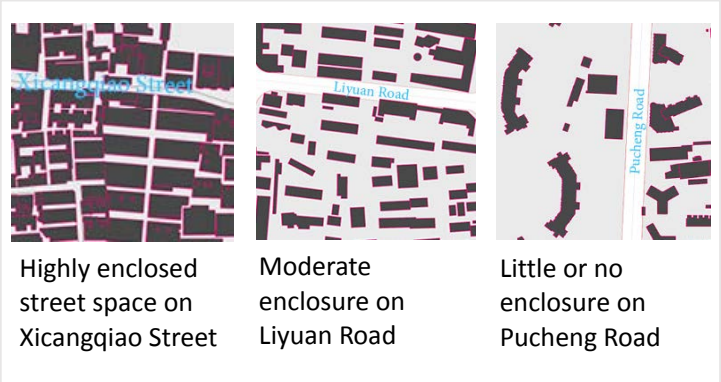

Figure 3-28: Examples of degrees of enclosure on three different street segments

Furthermore, while the degree of coherence was considered non-problematic, the *degree of complexity* was considered very important for this study in Shanghai, due to commonly having extended projects built with similar features across several blocks, often resulting in a high uniformity. Complexity, referring to the visual richness of a built environment, depends on the variety of physical elements related to: architectural diversity, ornamentation, landscape elements, street furniture, signage, but also to human activity (Ewing & Clemente, 2013). The defined categories for the degree of complexity, inspired from the works of Ewing & Clemente (2013) and of Clifton et al. (2007) are summarized as follows:

Little or no complexity: uniformity of the building style, with no ornamentation, with a lower number of windows or openings towards the street and limited human activity visible;

Medium complexity: buildings of slightly different forms and heights, with little ornamentation and few human activities around buildings;

Highly complex: varied buildings with many architectural details, of various materials and colours, in highly populated areas.

The *degree of transparency from the street* refers to how much people can see or perceive what lies beyond the edge of the street, especially in terms of human activity (Ewing & Clemente, 2013). Trees, bushes, and entryways also contribute to transparency, providing signs of habitation, in contrast to the blank walls that suggest that people are far away (Ewing & Clemente, 2013). At the street level, where the "*greatest interaction occurs between indoors and outdoors*" (Ewing & Clemente, 2013, p. 11) transparency becomes critical. The defined categories for the degree of transparency are summarized as follows:

Low transparency: almost no human activity visible from the street;

Medium transparency: some human activity can be perceived from the street, through semi-transparent fences or through unclosed gates;

High transparency: human activity can be very well perceived from the street; there are no fences, and no visual barriers; or, people come out into the street to pursue their daily activities.

Human scale is related to the verticality of frontages in relation to human proportions, but is also related to the experienced dimensions of the street (segment lengths and widths). Elements such as street trees, street furniture, pavement textures, building details, and other details of the physical environment that can be captured by sight at the speed at which humans walk are also important in the perception of the scale of the street (Ewing & Clemente, 2013). In the theory of architecture, there have been defined several other scales of the built environment, especially concerning streets and squares (see for instance Kostof, 1991:2012; Lynch, 1960; Sitte, 1889:1992). For this study on residential streets, the encountered urban scales are defined as follows:

Human scale: The details of the street environment are harmonious in relation to the human sizes and proportions, and they can be captured by sight at walking speeds.

Modernist-socialist scale: The street environment has been built under the influence of the Modernist movement, following functionalist principles that prioritize structure and clarity of form, with a lack of ornamentation or architectural details. The modernist principles in the context of Shanghai also coincide with the beginning of the Republican and Socialist periods in China (around 1950s).

Automotive scale: The built environment was meant to be legible from roadways at the speeds of the passing vehicles, with buildings that present signage with big, evident letters, readable at a glance. Considering urban streets, it can also refer to the roadway dimensions, planned and designed to accommodate high flows of cars and vehicles, without consideration of pedestrian comfort.

Furthermore, a *landmark* is defined as something that is visible, recognizable and memorable. Landmarks have different levels of importance, and for this study there have been differentiated the landmarks of local importance, of district

importance and of importance at the city level. Mahmoudi et al. (2014) found that landmarks were not sensible enough for participants to answer to their related questions, therefore the interpretation of this indicator has been done mainly from an urban planning perspective.

3.9.2 Selected Indicators for assessing Physical Facilities for Living and the Mix of Uses

Two main factors have been considered for the analysis of this liveability quality: land uses, services and amenities on the segments, and the available green and open spaces. These factors were given high importance by the Shanghai professionals (see Chapter 4, Table 4-3).

In what concerns the factor of ***Land Uses, Services and Amenities*** on the segments, in correlation to the dominant residential land use, accounted were other 'secondary uses'[62] and their role in generating 'secondary diversity' (see Jacobs, 1961:1993; Montgomery, 1998). The discussion on 'secondary uses' is even more relevant because, in Shanghai, there are only a few streets that are bordered by a residential mono-function (see also section 3.3.3). The land uses are discussed together with the available facilities and amenities on the segments. Other small scale elements which might also be regarded as public amenities, such as street furniture (public information displays, public telephones, public bus stops with rain shelters), have been considered under the quality of the Local Humanized Environment.

Another indicator concerning land uses and services on the selected streets is represented by the active ground floors. In this study, the definition of active ground floors refers to business or retail uses that open directly to the footpath, similar to what in the Australian context is referred to as active frontages (see for instance the Sydney Local Environmental Plan, 2012, the Activity Centre Design Guidelines in Victoria, 2005). In other contexts (see for instance the UDC 1, 2000:2007 in the UK) the whole frontage is taken into consideration when judging active frontages, considering altogether the rhythm of the buildings, the articulation and the complexity of the facades. However, in this study, morphological aspects of the entire facades have been analysed under the Humanized Environment quality, and

[62] 'Secondary uses' in this research are considered any other land uses on the selected streets, in addition to the primary residential use, which was dominant.

therefore to clarify what this indicator is referring to, I used the term of 'active ground floors'[63]. What is more, I have analysed the active ground floors not only in their role of attracting people and of making the space of the street livelier, but also for revealing what kind of services (and businesses) are opened to the public in this Chinese economic and political context. If the ground floor space was programmed for commercial use, but it has been closed, it was non-functional or it had limited access, it was not considered as part of currently 'active ground floors'. Furthermore, ground floor spaces with restricted access (such as office buildings) have not been considered active either.

In addition, the subjective perception concerning services and facilities on the street segments has been captured through ratings and comments from interviews with residents.

The factor of ***Green and Open Spaces*** includes as indicators: the green coverage which represents the percentage of green space[64] within the entire lot; the types of green, open spaces within the residential compounds; and the public parks in proximity. Other indicators such as street trees and open spaces along the street have been included to the Pedestrian Environment Factor, under the Humanized Environment quality.

3.9.3 Selected Indicators for assessing Local Economic Activities

Concerning Local Economic Activities, there has been analysed the factor of ***Businesses on the Street***, which included the following indicators assessed through systematic observations: the economic profiles of businesses; the social classes targeted by businesses; the presence of informal and ambulant vendors; and illegal activities. Additionally, there could have been analysed the rent ranges for living units or commercial spaces, which could have partly reflected the opportunity for starting new business (which has been highlighted by the Shanghai professionals, see Chapter 4, Table 4-3), however statistical data for these indicators could not be accessed. Instead, through interviews, the residents have been enquired whether they were involved in the business activities on the segments. However, the purpose of

[63] The proportions of 'active ground floors' on the selected streets have been estimated during site visits and based on serial pictures (see Appendix E1).

[64] The percentage of green coverage has been estimated considering the calculated building coverage (see section 3.9.1, page 124) and deducting the circulations (which were approximated at 20% of the lot).

this indicator was not necessarily to identify in how many of the business activities on the street there were residents involved, but it has been used to differentiate the subjects that were living on the selected segments from the subjects that only had businesses on the street.

3.9.4 Selected Indicators for assessing Safety

The Safety quality has been assessed through three factors that reflected the aspects highlighted by the Shanghai professionals in this study (see Chapter 4, Table 4-3): the correct use of the street space, the security eyes on the street; the perception of safety.

The ***Correct Use of the Street Space*** included the indicators of aggressive road users and the response to traffic rules. These have been assessed through on-site observations, as statistical data with the number of accidents on each segment could not be accessed.

The ***Security Eyes on the Street*** included the indicators of: the presence of security guards and of policemen; as well as the security cameras on the streets. Other indicators informing the security on streets are represented by streetlights and by the transparency of street frontages, which have been assessed under the quality of the Local Humanized Environment.

Under the ***Perception of Safety***, indicators with a more subjective nature have been assessed through interviews with the residents and included: ratings of safety from traffic; ratings of safety in living; as well as allowing children to play on the street side.

3.9.5 Selected Indicators for assessing Social Interaction and Public Life

Three factors have been assessed under the quality of Social Interaction and Public Life, and these are: the opportunities for interaction; the people on the street; the socio-demographic characteristics of residents.

For analysing the ***Opportunities for Interaction***, the more objective indicators were: observed human activities on the street; and the presence of outdoor (dining) tables and seating. The human activities taking place on the segments have been documented following the categorization of Gehl (1987: 2011) into necessary activities, optional activities and social activities. The subjective indicators assessed

were: the number of friends, relatives and acquaintances mentioned by residents on the same street segment; the recurrence of the residents' activities and the reasons for conducting such activities.

Other indicators included to the quality of the Local Humanized Environment, such as open spaces along the street and building setbacks could also inform the opportunities for interaction.

Concerning ***People on the Street***, the analysed indicators include: the population density; and the counted numbers of people passing-by. While in many Western countries it is currently promoted densification in order to positively influence social interaction (see Jacobs, 1961:1993) it is important to analyse what is the case of residential areas and of adjacent streets in the Chinese context, with generally higher population densities (Miao, 2001). The exact densities of people living on the selected streets have not been identified. However, the building densities in the areas bordering the streets has been analysed using the Floor Area Ratio (FAR) indicator under the quality of the Local Humanized Environment. A higher FAR usually indicates a higher population density, but for the selected segments this principle does not apply uniformly, as in poorer neighbourhoods more people live together in smaller housing units. In addition, the population density has been estimated in the wider context of Shanghai and furthermore, the number of people passing-by the street has been counted in a given time interval (see section 3.5.3).

Indicators concerning the ***Socio-Demographic Characteristics*** of the residents have been enquired through structured interviews and include: the length of time living on the street, the age, the origins, the education level, the income level, the house ownership, the number of people in the household.

3.9.6 Selected Indicators for assessing Sense of Place and Belonging

In this research, Sense of Place and Belonging is analysed through objective urban design analysis as well as through capturing the subjective perception of residents. Two main factors have been assessed, which also resulted to be of high importance according to the Shanghai professionals in this study (see Chapter 4, Table 4-3): the streetscape identity; and the involvement of the community to what happens on the street.

The ***Identity of the Streetscape*** has been analysed through the indicators of: street distinctiveness referring to the potential, cultural identity of the streets; and the identity experienced through perception senses, including the visual experience. Additional indicators explored through interviews with residents included: the home territory indicating places where the residents felt comfortable like in their own home; the memory of place captured in the way the residents pictured their street; the preferred meetup places with friends and neighbours; the noise tolerance.

For analysing the ***Involvement of the Community***, the indicators considered are: the cleanliness and sanitation on the street; the local gatherings taking place on the segment. Another indicator that has been usually assessed to reflect the involvement of the community is the building maintenance (see Clifton et al., 2007). However, the building maintenance in China is not regarded as a responsibility of the residents, as, while all the land belongs to the government, in a similar manner, the buildings belong to either the government, to the developers or rarely to inhabitants.

Other indicators that might inform the quality of Sense of Place and Belonging, such as the length of time living on a street and landmarks have been assessed under the qualities of Social Interaction and Public Life and under the Local Humanized Environment, respectively.

3.10 Conclusion to Chapter 3

In this chapter, there have been introduced research sub-questions that informed the steps taken to answer to the main research question. In connection to the research sub-questions, the research design included a first stage of the study with Shanghai professionals, followed by a comprehensive field study on selected street sites in Shanghai.

The design of the study with professionals, concerning how liveability is conceived and practiced in Shanghai, included a self-administered online survey and semi-structured interviews. The design of the field study on residential streets included semi-structured and structured interviews with residents, as well as systematic observations on selected street sites in Shanghai.

Concerning the street sites selection, by analysing Shanghai's historical development and the morphological characteristics of the built environment, there have been deduced four areas with differentiated particularities at the street level,

named S, M, L, XL areas (located within the Inner Ring Road area in Shanghai). Filtering the residential streets and considering traffic attributes as well as social characteristics of inhabitants, sets of parallel streets have been selected (S, M, L, XL1, XL2 sets), resulting in fifteen selected street segments.

Furthermore, there have been detailed tools and methods of data collection and data analysis for the different stages of this study. At the end of the chapter, based on the information extracted from the literature review and partly considering the results of the study with Shanghai professionals, there has been defined a Methodological Framework of Factors and Indicators for assessing liveability on residential streets in Shanghai (see Table 3-7, page 117).

Mixed methods and combined research strategies are employed in this study with the aim of making the research robust and of yielding rich data concerning liveability at the level of the street in this Chinese context.

4 FINDINGS TO THE STUDY WITH PROFESSIONALS

4.1 Introduction to Chapter 4

A study with Shanghai professionals has been put forward to refine the liveability aspects that have been extracted through literature review, to understand how liveability is conceived and practiced in Shanghai and to inform the framework of factors and indicators to be assessed on selected street sites. This first stage of the study represents a link between the theoretical understanding of liveability developed through the literature review and the field study on streets.

In the first part of this chapter, there are presented the findings from the online administered survey of Shanghai professionals, followed by findings from semi-structured interviews with academics and with developers.

4.2 Summarized Findings to the Online Survey of Professionals

4.2.1 Statistical results

To the online survey, 67.4% of the respondents were practicing architects and planners. The rest of 33.6% of respondents were either architects involved in the academia, landscape architects or professionals working with human-oriented matters. Concerning nationality, 48 respondents were Mainland Chinese, 42 respondents were nationals of non-Asian countries, and the rest of 5 respondents were nationals of Taiwan, Hong Kong and other Asian countries.

From the respondents, 82.1% were working in Shanghai, 9.5% were working in other Chinese cities, while 8.4% were not working in China anymore at the moment of the survey (see more in Appendix C1).

4.2.2 The way liveability is conceptualized in Shanghai

Two questions in the online survey asked the participants about their length of experience in their professional field and about how often they use ideas concerning liveability in their practice. When correlating the answers of the two questions, it resulted that independent of the length of experience, the majority of the respondents affirmed that liveability ideas are used with more than 50% of their

projects, as it can be seen in Figure 4-1. This means that using liveability in projects is not much affected by the numbers of years of professional experience, or by the professional training received across generations.

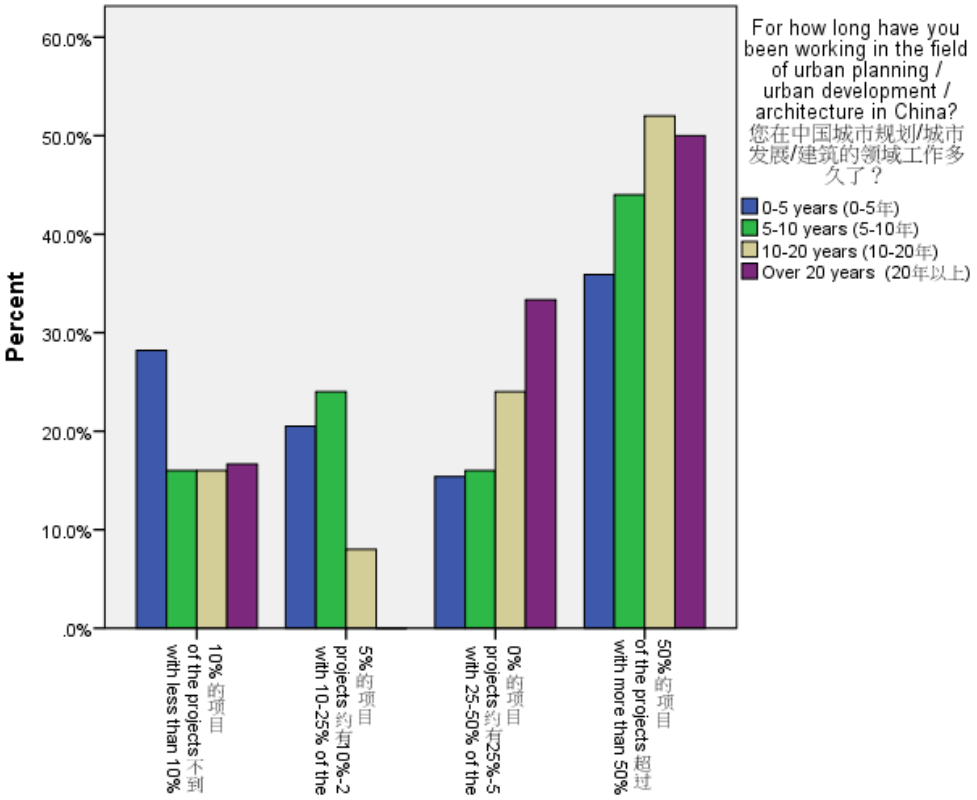

Figure 4-1: Correlation of length of practice with using liveability ideas in projects

Furthermore, as it can be seen in Figure 4-2, the three most prevalent words used in the responses to the online survey on liveability were: access, space and environment. ‘Access’ was mentioned in relation to the access to facilities and services, to the access to food and affordable housing, to mobility access for pedestrians, cyclists and vehicles, to access to green and leisure spaces, to access to retail areas. ‘Space’ was mentioned in the context of public and green spaces as platforms for social interaction, and of the quality and the quantity of the open spaces. The ‘environment’ was mentioned in the context of a clean and green environment needed, of a proper pedestrian environment, as well as in the context of a good environment for starting new businesses.

Figure 4-2: The 30 most prevalent words used in the responses to the online survey

A further open-ended question in the survey asked participants about their definition of liveability in the Shanghai context. Before beginning the analysis, a set of four themes related to liveability at the city level has been created, starting from the literature review: the economy, the environment, the social and the governance. Other themes emerged when coding the answers: a subjective side of liveability and an integral perspective of the liveability concept.

From the four main themes of liveability – the economy, the environment, the social, the governance - the largest number of extracted references concerned the environment, particularly the built environment, followed by references concerning the social theme. The respondents gave a high importance to the transport convenience, including the '*commuting distance and time'*, the '*easy mobility*', the '*walkability*', the '*connectedness*' and the '*diverse public traffic choice'*. Emphasized were also the '*good access to public utilities'*, the '*walking distances to the metro'*, the '*accessible green spaces for recreation*, up to '*all living facilities in walkable distance'*. Another concern for practicing architects and planners regarding liveability in Shanghai was the quality of the natural environment. The respondents made reference to '*pollution*', '*clean air and water'* but also to '*parks and green areas*' in proximity.

Concerning the social dimension, the Shanghai professionals made reference mostly to safety, culture and community. The importance of both living safety and

safety from traffic were reflected in comments that mentioned '*safety from mugging*' and '*safety in pedestrian areas, [however with] no barriers, [but also with] no mixture with electric bikes*'. The participants also referred to culture, especially in the context of '*cultural resources [that] can also promote economy*'. The respondents further valued '*encouraging people to interact and explore the public space*'. Relatively often, education was also indicated as an important factor for liveability.

The dimension of economy was also considered important by the Shanghai professionals in the online survey, especially concerning affordability and job opportunities. Additionally, the '*business opportunities'* and the '*richness of activities'* have also been considered important. In what concerns the governance, the importance of '*governmental efficiency'* and '*vision and policy'* were mentioned.

The responding architects and planners to the online survey recognized also a more subjective meaning of liveability, depending on the perception of each individual. A '*balanced work and life'*, and a '*cross between urban built environment and human behaviour'* were mentioned. An integral understanding of liveability resulted from comments that referred to liveability as a '*holistic approach'*, including '*how enjoyable, how convenient, how free of hassle'* a city is, and '*how much choice people have in a city to live, work, learn and play*'.

4.2.3 Conceptualizing liveability at the level of the street in Shanghai

Another qualitative question in the survey asked for the most important factors affecting liveability at the street level in Shanghai and revealed that, from the perspective of professionals, important were: 'traffic', 'green space', 'transportation', 'accessibility' and 'safety' (see Appendix C2). Following the collection of opinions regarding the definition of liveability in Shanghai and the factors that influence liveability at the street level, a Likert-scale type question was formulated. The aim was to see in what percentage respondents would agree with the extracted aspects concerning liveability at the level of the street based on the literature review (safety, sense of place, social interaction, the humanized environment, small scale economic activities and good physical facilities for living). The results indicated a majoritarian agreement (over 70% cumulated percentages on 'agree' and 'strongly agree') with the importance of the extracted qualities for liveability on the Shanghai streets, as it can be seen in Table 4-1.

Table 4-1: Concurrence in professionals' views with the extracted liveability attributes from literature

Liveability attributes important for a liveable streets study in Shanghai	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
	Percent	Percent	Percent	Percent	Percent
Safety (safety in living and from traffic)	1.05%	5.26%	5.26%	40.00%	48.42%
Sense of place	2.11%	5.26%	17.89%	38.95%	35.79%
Social Interaction	1.05%	3.16%	16.84%	44.21%	34.74%
Humanized environment/ humanistic care	2.11%	6.32%	13.68%	36.84%	41.05%
Small Scale Economic Activities	0.00%	4.21%	15.79%	38.95%	41.05%
Physical facilities for living	2.11%	4.21%	14.74%	44.21%	34.74%

To investigate whether there are significant differences based on nationality in the answers to the Likert-type question, a T-test for two independent samples was used. The overall result of the T-test was not statistically significant, with $t(93)=.372$, and $p=.711$. Furthermore, the Chi-Square test when cross-tabulating the median with the division on the two-groups of Mainland Chinese nationals and non-Chinese respondents was also not significant ($\chi^2(1, N=95) = 4.238$, $p = .645$. Under this result, we fail to reject the null hypothesis, and from the sample extracted it cannot be deducted whether there are significant differences in the opinions of Mainland Chinese and non-Chinese samples. Thus, it can be assumed that independent of the nationalities, the respondents widely agreed with the variables of liveability at the street level, extracted from the literature. Additionally, the calculated Cronbach Alpha on the Likert-items had a value of .809, revealing a good internal consistency.

A following question in the online survey asked participants whether there were other variables they considered important for liveability at the level of the street, besides the ones listed in the Likert-scale type question. It resulted that the most often concepts mentioned, in the order of their frequency were: 'spaces', 'access', 'environment', 'green', 'public', 'air', and so on, as it can be seen in Figure 4-3.

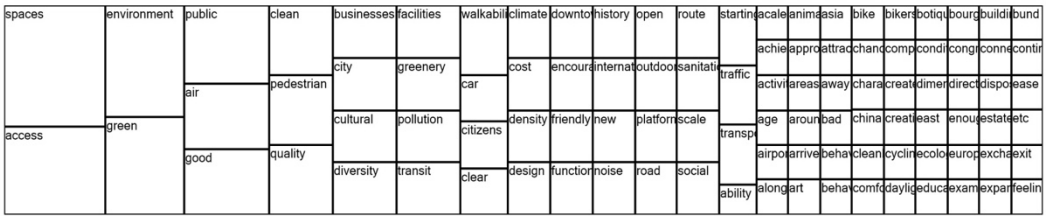

Figure 4-3: Word frequency of other variables important for liveable streets

Text searches for the three most frequent variables have been performed in the responses of the participants. It resulted that they were directly linked to '*green spaces*', '*quantity and quality of open spaces*', '*public spaces as platform to practice social <politics>*', '*public spaces as platform to interact with art*', '*access to green spaces and to transit options*', '*clean pedestrian environment*', '*environment for starting new business*'.

4.3 Findings from Semi-structured Interviews with Academics

For the case of Shanghai, the interviewed academics argued that, besides the economic dimension that has been in focus for a long time, it was the right time for the city to switch part of its attention towards the environment and towards social issues.

According to three of the six academics interviewed, a main concern for liveability in Shanghai was represented by the high density of the built areas. Based on the reason of the high density, one respondent explained the preference of wealthy people for living in newer developed areas like Pudong, as one '*can enjoy the higher vegetation coverage and can breathe the cleaner air'* (Respondent A5). Similarly, another Chinese researcher believed that many people preferred the streets of Pudong because the environment was better than in downtown Puxi.

The topics that were most frequently mentioned in the interviews with the academics concerned the street vendors, the green and open spaces, the safety, and the social interaction. Street vending was seen as an informal economic resource. One respondent added that while the local people might enjoy the convenience provided by the vendors, the way the vendors occupied the road could lead to potential traffic injuries. The suggestions included the fact that the local government should provide space for a legal market for the vendors, which are most often

migrant workers. Regarding the issue of open spaces, the main problem mentioned was that "*the public space is very narrow and limited*" (Respondent A5), especially in the downtown area. Regarding safety, the main issue mentioned was that of electric bikes that neglected the traffic rules, making it very dangerous for pedestrians and for other participants to traffic. Concerning liveable streets, 4 out of 6 academics interviewed argued that the top-down approach should be given up, in the same time involving the communities and the local people more.

Most of the respondents acknowledged the important role of the government in improving liveability-related issues. However, two respondents considered that the movement from bottom-up (from the civil society, universities, Non-Governmental Organisations (NGOs), from the international community) should be complementary to the government initiatives for achieving liveable streets. Social media was also given a high importance in promoting the liveability concept.

4.4 Findings from Semi-structured Interviews with Developers

The responding developers associated the liveability concept with terms such as "*comfortable*" and with the possibility to "*live, work, play"* or "*live, play, learn"* (Respondents D4, D5, D6) as well as to "*having a sense of community*" (Respondent D6).

Regarding liveability and streets, some developers considered the biggest problem in Shanghai was the traffic. To solve this problem, the given suggestions were for making public transportation more efficient and learning from other Asian cities such as Seoul, Tokyo, Hong Kong, Singapore.

When asked about the new policy of opening the gated communities, half of the interviewed developers were reticent about this possibility. As they mentioned, in China "*people expect a compound*" (Respondent D6), as this development model has been recognized in China "*for more than 20 years, since when the accelerated development started*" (Respondent D5).

4.5 Conclusion to Chapter 4

From the overall study with professionals, it resulted that different categories of actors had slightly different concerns related to liveability in Shanghai. For practicing architects, the main concerns were: traffic and transport, accessibility to facilities, green areas and open spaces. For academics, important were: the social issues and the involvement of the community, the Chinese identity of the space, but also the natural environment. For developers, important variables of liveability concerned: the affordability, the convenience, the healthy lifestyle (following the Western model). Although each category of actors in Shanghai conceived and practiced liveability in slightly different ways, they are eventually responding to the needs of at least one of the dimensions of liveability.

Based on the results of this first stage of the study with professionals, it has been confirmed that liveability at the level of the city in Shanghai has to do with four dimensions, in the order of the importance given by expert informants: the environmental dimension, the social dimension, the economic dimension, the governance. From the point of view of the built and natural environment, Shanghai professionals emphasized the clean air and water, the facilities, transportation, affordable housing, the green and open spaces. From the social point of view, the professionals emphasized the opportunities for social interaction, the involvement of the community and the identity of the space. From the economic point of view, the convenience and the opportunities for employment were considered important. Additionally, the professionals emphasized the governmental efficiency in vision and policy. The emphasized parameters for liveability in Shanghai at the level of the city are summarized in Table 4-2.

Table 4-2: Aspects emphasized by professionals under four main liveability dimensions at the level of the city in Shanghai

LEVEL OF THE CITY	
Dimensions of liveability in cities, as conceptualized in the Chinese context	**Liveability aspects emphasized by professionals for the case of Shanghai (city level)**
THE ENVIRONMENT	Green and open spaces
	Pedestrian environment
	Accessibility to services and facilities
	Efficient Transportation System (especially for pedestrians and cyclists)
	Affordable housing
	Clean air and water
THE SOCIAL DIMENSION	Social inclusion
	Involvement of the community in decision making
	Culture
	People's interaction
	Education
	Safety in residential and in pedestrian areas
	The Chinese Identity of the space
THE ECONOMY	Opportunities for employment
	Richness of economic activities
	Business opportunities
THE GOVERNANCE	Efficient governmental decision/vision/policy

Concerning liveability at the level of the street in Shanghai, the main aspects emphasized by the different categories of actors concern: the public green spaces and the pedestrian environment, emphasized especially by practicing architects and planners; the correct use of street space and the streetscape with identity, emphasized especially by academics; the short distances and the street green emphasized especially by developers. These aspects emphasized by different categories of actors are presented in Table 4-3, grouped under the agreed upon attributes of liveability at the level of the streets in Shanghai by the majority of the respondents.

Table 4-3: Aspects emphasized by professionals for liveable streets in Shanghai

LEVEL OF THE STREET	
Liveability qualities at the level of the streets (extracted from literature and confirmed through the study with Shanghai professionals)	***Emphasized aspects of liveability at the street level in Shanghai - by professionals***
Safety (traffic safety and living safety)	Correct use of the street space (e-bikes respecting traffic rules; informal vendors not bothering the circulation)
Humanized environment	The short distances/commuting distances and time/traffic /connectedness/ distance to Metro/convenient transport /accessibility
	The pedestrian environment/the walking system/walkability
	The street green
	The aesthetics/the image of the street
Small-scale Economic Activities	Opportunity for starting new business
	Richness of local economic activities
Sense of Place	The streetscape with identity/cultural identity
	Involvement of the community
Social Interaction	Interaction of the people - interpersonal relationships
	The availability of open spaces for interaction to occur
	People exploring the public space
Facilities for living	Access to utilities/facilities/services for living
	Green space, the street green

In the end, based on the dimensions and variables of liveability extracted from the review of literature and from the survey of Shanghai professionals (Table 4-2, Table 4-3), I could determine and confirm that liveability at the wider level of analysis in Shanghai is resting on four corners: the environment, the social issues, the economy, the governance. Concerning streets, the confirmed attributes of liveability to be further assessed through the empirical study have been decided and include: *the humanized environment, the facilities for living, the small-scale economic activities, safety, social interaction, sense of place.*

5 FINDINGS FROM INTERVIEWS WITH RESIDENTS

5.1 Introduction to Chapter 5

In the first part of this chapter, a synthesis of data correlation between interview findings and systematic observations is presented upfront, according to the selected sets of streets (S, M, L, XL1 and XL2 streets).

The second part of the chapter presents overall statistical results based on interview findings. The detailed resident perceptions on each street segment, captured through both semi-structured and structured interviews are presented in Appendix D3. Data captured through interviews, presented in the second part of this chapter and in Appendix D3 is structured according to the assessed indicators (see Table 5-1).

Table 5-1: Indicators assessed through interviews with residents (extract of the Methodological Framework of Indicators)

INDICATORS assessed through INTERVIEWS with RESIDENTS		
QUALITIES	FACTORS	INDICATORS
Local Humanized Environment	Residents' perception of the built environment	**Bothering issues** / Improvements needed on street / Traffic issues
Physical facilities for living and the mix of uses	Land uses, services and amenities	**Assessment of facilities and services**
Local Economic Activities	Businesses on the street	*Residents involved in business activities on the street*
Safety	Perception of safety	**Safety perception (from traffic and in living)** / Children allowed to play on the street side
Public Life and Social Interaction	Opportunities for interaction	**Number of friends and acquaintances** / Recurrence of activities and associated reasons
	Socio-demographic characteristics of residents	**Length of time living on the street**/ *Age/ Origins / Education level / Income level / House ownership / Number of people in the household*
Sense of Place and Belonging	The identity of the streetscape	Memory of the place (picturing the street) / **Home territory (feeling at home)** / *Noise tolerance* / **Meetup places for residents**

**Indicators presented in statistical results*
*Indicators described on each street (in Appendix D3)
***Indicators summarized in statistics, as well as described on each street**

5.2 Synthesized data correlation on street sets

5.2.1 S streets

Within the S segments, located in a '*village inside a city*'[65] (*龚诚村, gongchengcun*), the most common problem mentioned by 28% of respondents was that of inadequate living conditions, in houses (P+1; P+2) built in the nineteenth century in the Old Town, which lacked toilets and kitchens. Because of this, 17% of respondents expressed a sense of eagerness as they waited for the government to demolish this old and densely built housing (a building coverage of nearly 70%). Land administration issues have made immediate interventions to improve living conditions in the S area impossible; nevertheless, numerous plans have been drawn up and, over the years, three mid-rises (P+6) and one high-rise building (P+27) have been inserted among the shanties and '*lilong'* houses, despite the area being part of the Old Town Historical and Cultural Scenery Zone and thus intended for preservation.

Issues around the nineteenth-century constructions were however not directly reflected in the way the residents rated facilities; 60% of respondents gave a positive rating in consideration of the proximity of commercial facilities. Yet, some respondents (13%) complained about stores having been forcefully closed, inconveniencing both residents and shopkeepers. At the same time, although the business and commercial functions of the S streets were decreasing due to recent government licence control, at the time of the study, 40-65% of ground floor units (aligned to the street) were active.

Both public safety and safety from traffic were positively rated by dominant percentages of respondents (68% and 65% respectively), and additional comments revealed that a strong sense of security was provided by the high number of neighbourhood people watching the street, and the strong social ties in the locality. Proof of the strong social ties formed was provided by the fact that more than 50% of respondents had over 10 (and up to 70-80) friends on the same street segment, with more than 50% of friendship relations easily formed on both sides of the street. In addition, more than 50% of respondents had relatively large home territories

[65] A village inside a city, or 'urban village' (*龚诚村, gongchengcun)* refers to a former village area which remains unchanged in the context of a fast developing city, in which the local infrastructure is distinct from the city infrastructure (Chang & Tipple, 2009).

(areas where they felt at home) which included their buildings and the street, or even the entire block. As observed on site, and emerging from the responses of 62.5% of respondents, the streets and lanes had become main meeting points for residents, and thus these were animated at all times, regardless of the season or time of day. As confirmed through interviews, the human activities taking place most extensively on the S segments were of a domestic and social nature, including chatting and sitting outside, eating on the street, as well as having children playing on the street.

At the same time, 37.5% of respondents mentioned issues concerning the narrowness of the streets, having too many vehicles and people around, and the inconvenient parking. However, 40% of respondents stated that they encountered no traffic issues on the S segments. This was also reflected in the way pedestrians walked in the road, alongside vehicles, without concerns. Minor dissatisfaction with the traffic appeared not to affect residents' perception of safety; in addition, this issue did not prevent them from pursuing social activities on the streets, as noted through on-site observations. Nevertheless, the narrow streets width (4-7m) was inconvenient particularly for business owners, but also for residents whose houses opened directly on to the street, rendering it impossible to conduct certain activities in front of their house.

About 50% of respondents initially said they had no concerns about living on the S streets; however, the issues mentioned above emerged as the interviews went into greater depth.

5.2.2 M streets

When asked about their satisfaction with living on the M streets in the former French Concession area, 60% of respondents initially voiced no concerns; yet, other 25% of respondents indicated improvements were needed to housing conditions. Particularly concerning *lilong* houses (P+1; P+2; P+3) built in the 1930s, opinions were mixed. For example, two respondents shared their drastic view of replacing the old buildings with high-rises, while three other respondents acknowledged the special architectural features of the buildings. Furthermore, two respondents mentioned their satisfaction with buildings which have been renovated and facilities improved; other five respondents considered the building renovations to be superficial, with the interiors remaining in poor condition.

Other complaints from 15% of respondents concerned shops which had been removed by the government (especially breakfast stalls and vegetable markets), as well as the limited green spaces in living areas (as green coverage was less than 15%). Nevertheless, active frontages on the three segments were still in proportions of 50%, 65% and 95% respectively. Overall, facilities were rated positively by 60% of the residents, with remarks making particular reference to the convenience of shopping.

Having too many vehicles, especially too many public bikes, along with parking issues and traffic jams on roads considered to be too narrow, were reasons for complaint for 30% of respondents. This happened especially because of the conditions of narrow pavements (2m) and narrow bike lanes (average width 1m) on roadways of 8m, 9m or 11m, which occasionally forced bikes to ride against the traffic or on the pavement, causing circulation conflicts.

The street and lanes were the preferred meeting places for 63% of respondents to the structured interviews; confirmed through on-site observations, the streets were animated at all times, especially the low- and medium-traffic streets, and slightly less on the high-traffic segment (Shaanxi South Road). Nevertheless, both public safety and safety from traffic were highly rated as positive (85% and 70% respectively). Human activities taking place most extensively on the M segments were domestic and business-related, including necessary, optional and social activities. At the same time, social ties on the M segments were strong: half of respondents answering to drawing questions felt at home on the whole block; 33% of respondents had over 10 friends (and up to 100 acquaintances) on the same segment; and 30% of respondents had friends and acquaintances on both sides of the street.

5.2.3 L streets

Fifty per cent of respondents living in the L segments, built in the socialist period but with recent compound reconstructions, expressed no concerns. Others (cumulating to 30% of respondents) mentioned dissatisfaction regarding the remaining older buildings (P+5) among the reconstructed compounds (P+20; P+30), or regarding the disordered vehicle parking, as well as the untidy open spaces and insufficient green spaces (despite green coverages of 30-40% of the compound).

When asked specifically about traffic issues, 47% of respondents indicated there were none, while 23% mentioned issues such as the L segments having too many vehicles and traffic jams (despite increasing road widths of up to 20m). Nevertheless, positive ratings were recorded for both public safety and safety from traffic (76% and 73% respectively).

Furthermore, besides a few neutral ratings regarding facilities, 85% of respondents considered these to be convenient, expressing particular appreciation of proximity to the vegetable market, and to fruit and vegetable stores.

Concerning social relations, 32% of respondents had over 10 friends or acquaintances (and up to 70-80 acquaintances) on the same segment, while 26% of respondents indicated having friends and acquaintances on both sides of the street, a decrease compared to the S and M streets. Nevertheless, 41% of respondents to structured interviews preferred to meet on the street itself or in the lane, followed by 29% who preferred to meet friends in restaurants. Based on observations, the places most active with human activity were still small businesses, such as markets, shoe and bike repair stalls, vegetable and fruit shops, and newspaper kiosks. Nevertheless, fewer social activities were overall recorded on the L streets compared to the S and M streets.

5.2.4 XL1 streets

Forty per cent of respondents expressed no concerns about living on the XL1 streets, which were bordered by mid-rise work units from the socialist period (predominantly P+5). However, complaints about traffic-related issues, such as the high number of vehicles (of up to 2000PCE/h, on roadways of up to 15m) and difficulties with parking, were recorded from 26% of respondents. Furthermore, when asked in greater depth about traffic and transport issues, the main problem mentioned by 43% of respondents was that of too many vehicles occupying the street space.

In addition, respondents expressed a wish for more green space (despite green coverage of 30-40%, according to calculations based on sitemaps), for improved facilities and infrastructure, and for the addition of more shops. However, residents on the high traffic segment (Shangcheng Road), with only 15% active ground floors (of which some were small offices), benefited from commercial

facilities situated on adjacent streets. As a result, 74% of XL1 respondents positively rated the physical facilities for living available to them.

Concerning places to meet, 38% of respondents preferred the street itself or the lane; however, according to site observations, while gatherings often took place on the low-traffic street (Qixia Road, with 300 PCE/h in average), on the other two segments people gathered in lanes or in activity centres inside residential compounds. Nevertheless, 40% of XL1 respondents overall stated a preference for meeting friends in the nearby park, while another 24% met friends in a restaurant or coffee shop; this was confirmed by on-site observations.

Overall, 47% of respondents had more than 10 friends on the same segment, indicating close social ties; however, friendship relations developed on both sides of the streets for only 24% of respondents.

Public safety and safety from traffic were both positively rated by the majority (74% and 76% respectively), with no significant differences between the low, medium and high traffic segments.

5.2.5 XL2 streets

The XL2 streets were bordered by frontages of different characters, predominantly built in the post-reform period (P+20; P+50), yet work units remaining from the socialist period (P+5) were also encountered. Common to the three streets were the lengthy segments (of over 500m), but also increasing pavement dimensions (an average of 3m, increasing to a width of 8-10m). Along with the different characters of the three XL2 segments, resident complaints were about different issues. On the high-traffic segment (Pudong South Road, with around 3600 PCE/h) which was very wide (26m), 70% of respondents complained about the high number of vehicles (especially those which were parked and occupying street space), but also about the overly long distances between intersections, and about the difficulty of crossing the street. On the medium-traffic segment (Nanquan Road, with around 1000PCE/h), which was the narrowest (11m) in this set, complaints recorded from 40% of respondents concerned the narrow street profile, seen as a main reason for congestion. On the low-traffic segment in the XL2 set (Pucheng Road), 45% of respondents complained about low accessibility to transport, services

and facilities, while mentioning about the elimination of local shops which followed compound reconstructions.

Overall, traffic issues regarding the high number of vehicles and parking issues concerned 37% of XL2 respondents; at the same time, 39% expressed no complaint. Public safety and safety from traffic were both rated as positive by significant percentages of respondents (87% and 84% respectively), while facilities were considered convenient by 68% of respondents overall (although the distances to metro and commercial facilities grew compared to the S, M or L streets).

However, less human activity took place on the XL2 streets, coinciding with the lower amount (20-35%) of active ground floors. Mainly necessary activities have been recorded, such as waiting at bus stops; social activities were very limited, as observed on-site. Nevertheless, as a place to meet up, 41% of respondents to the structured interviews stated a preference for meeting in the lane or even on the street; observations, however, indicated that meeting friends and neighbours took place on inner alleys within compounds and rarely on the street, except for the few groups of neighbours playing board games. At the same time, 39% of respondents preferred to meet their friends in restaurants or coffee shops, although these were not necessarily located on their streets. Furthermore, 48% of respondents had over 10 friends on the same segment, but only 19% of the total number of respondents indicated having friends and acquaintances on both sides of the street, coinciding to the increased motorized traffic.

5.2.6 Comparative results on S, M, L, XL1 and XL2 streets

Correlating the interview responses with data obtained from observation, it emerged that, from the S to the XL2 streets, standards of living increased (having increased living facilities and green coverage), but that, along with growing segment lengths, road widths, building heights and setbacks, social and business activities decreased overall (see Figure Figure 5-1 and Table 5-2). Some exceptions to this general progression were recorded in the L and XL1 segments, firstly because the L segments presented improved living conditions through the recent insertions of modern high-rises (which partly eliminated small-scale economic activity), and secondly because two XL1 segments had commercial ground floors, resulting in a flourishing street life. This line of progression was captured especially through indicators such as active ground floors, percentage of respondents preferring to meet their friends and family on streets and lanes, and percentage of respondents with friendship relations on both sides of the street (see Table 5-2).

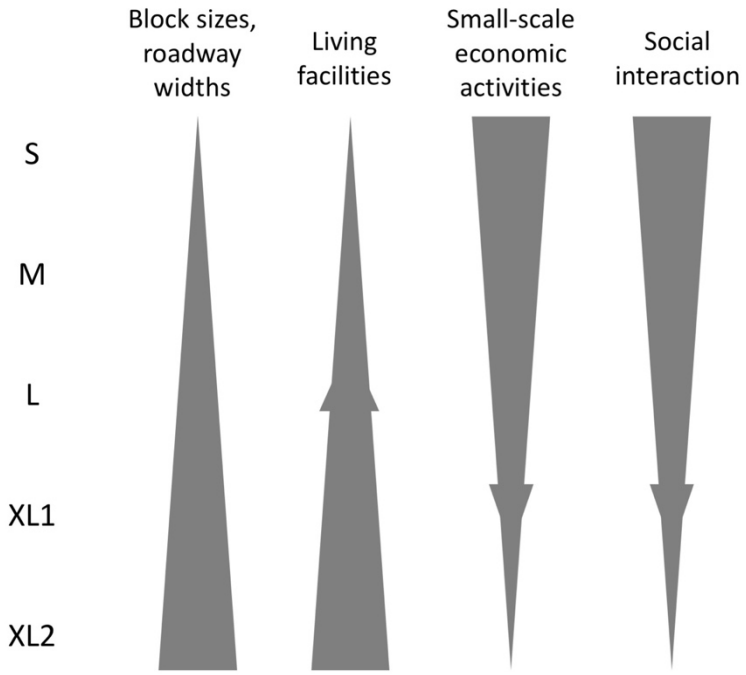

Figure 5-1: Diagram with comparative results on S, M, L, XL1 and XL2 segments

Table 5-2: Comparative data results on S, M, L, XL1 and XL2 streets

Street sets	Data from Observations					Data from Interviews				
	Segments length (dominant)	Roadway widths	Building heights (dominant)	Setbacks (dominant)	Active ground floors	Meetup on streets and lanes	Respondents with over 10 friends	Friendships on both street sides	Positive safety rating (in living/ from traffic)	Positive facility rating
S	< 200m	4m-7m	P+2	0m	40-65%	62.5%	50%	50%	68%, 65%	60%
M	200m	8m-11m	P+3	0m	50-95%	63%	33%	30%	85%, 70%	60%
L	300m	11m-20m	P+5/P+30	0 / 5m	35-65%	41%	32%	26%	76%, 73%	85%
XL1	350m	10m-15m	P+5	0 / 5m	15-80%	38%	47%	24%	74%, 76%	74%
XL2	>500m	11m-26m	P+5/P+20/P+50	5m / 10m	20-35%	41%	48%	19%	87%, 84%	68%

5.3 Statistical Results from Interviews with Residents

5.3.1 Statistics to Semi-Structured Interviews with Residents

From the total number of 114 respondents, 46 were female respondents (40%) and 68 were male respondents (60%). The dominant age group was of 50 to 65 years old (40%), followed by the age group of over 65 years old (21%). The younger respondents, from 18 to 35 years old had the lowest representation (18%), followed by the age group of 35 to 50 years old (20%).

5.3.2 Statistics to Structured Interviews with Residents

5.3.2.1 Indicator: Length of time living on the streets

As it can be seen in Table 5-3, the category of respondents to the structured interviews that lived on the selected segments between 20 and 50 years was dominant in each street set.

Table 5-3: Length of living on the selected segments

Length of living (years) * Set		Set					Total
		S	M	L	XL1	XL2	
Length of living	less than 1 year	9,4%	0,0%	5,9%	7,1%	3,2%	5,2%
	1 - 5 years	0,0%	3,0%	17,6%	26,2%	22,6%	14,5%
	5 - 10 years	6,3%	9,1%	8,8%	7,1%	3,2%	7,0%
	10 - 20 years	25,0%	27,3%	20,6%	9,5%	29,0%	21,5%
	20 - 50 years	40,6%	48,5%	26,5%	40,5%	35,5%	38,4%
	more than 50 years	18,8%	9,1%	20,6%	9,5%	6,5%	12,8%
	missing	0,0%	3,0%	0,0%	0,0%	0,0%	0,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

5.3.2.2 Indicator: Bothering issues about living on the selected streets

For the majority of respondents, nothing bothered them about living on their streets, as it can be seen in Figure 5-2. For other respondents, the complains referred most often to having too many vehicles, too many people or to the inadequate parking space. Complains have also been recorded about the living environment and about the environment of the street, but less.

Figure 5-2: Tag cloud, what bothered the residents about living on their streets

5.3.2.3 Indicator: Friends and acquaintances

Several interviewees mentioned having no friends on the same street; the percentage of respondents with no friends generally increased from those that lived longer on the streets to the those that lived for a shorter time on the streets, as seen in Table 5-4.

Table 5-4: Correlation between having no friends and the length of time living on the street

Length of living (years)	less than 1 year	between 1 and 5 years	between 5 and 10 years	between 10 and 20 years	between 20 and 50 years	more than 50 years
Percentage with no friends	55.6%	52.0%,	33.3%,	21.6%	25.8%	27.3%

Additionally, from the analysed sample to the structured interviews, it overall resulted that a higher percentage of respondents had no acquaintances on the other side of the street from where they were living (27.3%), compared to having no acquaintances on the same side of the street (11.0%). The Cronbach's Alpha for the two questions enquiring about the number of acquaintances on each side of the street resulted with a value of .776, indicating a good degree of internal consistency.

5.3.2.4 Indicator: Meetup Places

Table 5-5: Preferred meetup places

Meetup Places - Frequencies		Responses		Percent of Cases
		N	Percent	
Where do you prefer to meet your friends[a]	1) On the street itself	66	24.3%	42.9%
	2) In the lane	47	17.3%	30.5%
	3) In a park	34	12.5%	22.1%
	4) In a square	5	2.8%	3.2%
	5) In a restaurant	31	11.4%	20.1%
	6) In a coffee shop	17	6.3%	11.0%
	7) In the library	3	1.1%	1.9%
	8) At home	43	15.8%	27.9%
	9) Another private space	4	1.5%	2.6%
	10) Another public space	19	7.0%	12.3%
	11) Don't know, depends	3	1.1%	1.9%
Total		272	100.0%	179.2%
a. Dichotomy group tabulated at value 1.				

The highest percentage of responses (42.9%) indicated the street as the preferred place for meeting friends and acquaintances. Other highly rated meetup places were, in order: in the lane, at home, in a park, in a restaurant, or in a coffee shop (see Table 5-5). Furthermore, an accumulated percentage of 12.3% indicated other public spaces for meeting friends, such as: the gates shops and supermarkets, the neighbourhood activity rooms, teahouses, KTV[66], KFC[67] or McDonald's[68]. The percentages do not add to 100%, being a multiple-choice question.

The respondents who preferred to meet their friends on the street and in the lane indicated as main reasons the convenience and the close distance to home. The respondents who preferred to meet their friends at home mentioned the reasons of comfort, of convenience, of privacy, safety, and quietness. The respondents preferring to meet their friends in restaurants, coffee shops or other semi-public spaces mentioned the reasons of privacy and available seating, but also the reasons of a good environment, good atmosphere, and the possibility to chat while eating. Additionally, the park was preferred for playing games, for the possibility to sit down and chat with many people, for the available wide open space and the green

[66] KTV refers to Karaoke television. It is an interactive musical entertainment.
[67] KFC stands for Kentucky Fried Chicken, an American fast-food restaurant chain.
[68] McDonald's is an American fast-food company.

environment. Furthermore, the neighbourhood community room was preferred for the possibility to get involved in various activities.

5.3.2.5 Indicator: Perception of Safety

Across all the sets of streets (S, M, L, XL1, XL2), majoritarian percentages of respondents considering their streets as safe (50.0%) or very safe (27.9%) for living and as safe (50.6%) or very safe (22.75%) from traffic have been recorded.

For the two Likert-type questions concerning safety, the Cronbach's Alpha was .663 indicating an acceptable result of internal consistency, considering that two different aspects concerning safety have been questioned.

5.3.2.6 Indicator: Allowing children to play on the street

It overall resulted that 36.0% of respondents would let their children play on the street only with supervision, 33.1% of respondents would never let their children play on the street, and 8.1% of respondents would let their children play on the streets at any time.

Similar trends have been resulting within each set of streets, although on the XL1 and XL2 sets, the percentages of parents and grandparents that would never let their children play on the street were higher than the percentages of those that would let their children play only with supervision.

5.3.2.7 Indicator: Noise tolerance

From the selected sample, 54.1% of the respondents were not bothered by the noise on their streets, while 44.8% were bothered by noise. Of the respondents bothered by noise, 75.3% (64 people) were bothered by the noise coming from cars and buses, 22.4% (19 people) were bothered by the noise coming from bikes and motorcycles, 22.4% (19 people) were bothered by the people speaking out loud and 17.6% (15 people) mentioned other noise sources as bothering. The other noise sources mentioned included most often the renovation and construction works, but also the dancing taking place in squares, the noise from dogs barking, the honking. The percentages do not add to 100%, being a multiple-response question.

5.3.2.8 Indicator: Facilities and services

The physical facilities for living on the street segments have been rated as 'convenient' by the majority of the respondents in each of the S, M, L, XL1 and XL2 sets. Additionally, high percentages of respondents mentioned that the facilities were

'very convenient' within the L, XL1, XL2 sets (29.4%, 31.0%, 22.6% respectively), but 'neither convenient nor inconvenient' within the S and M sets (21.9% and 30.3% respectively). The Chi-Square test of independence is significant ($\chi^2(16, N=172) = 20.274$, $p = .208$), as the p value associated is smaller than 0.5.

5.3.2.9 Indicator: Home Territory (feeling at home)

To the respondents that did not agree to draw on the area of their perceived 'home territory', prompts have been given with descriptive options. The total number of respondents that chose to answer to prompts was of 77 out of 172 respondents. To the multiple-choice question based on prompts, the highest percentage of respondents (36.8%) felt comfortable just in their own house or apartment. The next significant percentages (of 26.3% and 23.7%) indicated that 'the whole block or more' felt at home and that 'the building and out into the street' felt at home, respectively. The percentages do not add to 100%, being a multiple-response question.

5.3.2.10 Demographic data of resident informants

Similar to the semi-structured interviews, people of different ages, both males and females, have been asked to take part to the structured interviews on each selected street. From the entire structured interviews sample, 30.2% of respondents had 50 to 65 years old, 28.5% of respondents had over 65 years old, 22.1% of respondents had 35 to 50 years old and 17.4% of respondents had 18 to 35 years old, reflecting a close distribution to that of respondents to semi-structured interviews.

The majority of the respondents attended middle school (37.7%), and another high percentage of respondents had university studies (25.0%). In the distribution according to sets, the majority of the respondents attended middle school in the S, M, L sets (37.5%, 48.5%, 35.3% respectively), while in the XL1 and XL2 sets, the majority of the respondents attended university (35.7% and 35.5%, respectively). The Chi-Square test of independence for the education level with the sets of streets is significant ($\chi^2(20) = 26.758$, $p = .142$), as the p value associated is smaller than 0.5.

Regarding origins, of all the respondents to the structured interviews, 61.6% were Shanghai natives and 33.1% were Chinese from other areas of Mainland China. Concerning ownership, most of the respondents owned their houses (51.7%), followed by the category of respondents that rented their houses from other landlords (27.3%). Within the sets of streets, the results showed similar trends, except for the

M set, where most of the respondents had (social) housing provided by the government (36.4%), closely followed by the respondents that owned their houses (33.3%). This could be explained by the fact that the adjacent living areas to the M streets were part of the heritage protection zone. The associated Chi-Square test of independence is significant ($\chi^2(16) = 28.640$, $p = .026$), as the p value associated is smaller than 0.5.

In what concerns the number of people in the households, dominant were the categories of respondents who mentioned having 3 or 2 people in their household (19.8% and 16.3%, respectively). However, a significant cumulative percentage resulted for people who mentioned having 5, 6 or more than 6 people in the household (20.3%). Still, a significant percentage of respondents (26.7%) chose not to answer to this question.

When correlating the declared monthly household incomes with the distribution on sets through cross-tabulation, it resulted that: on the S and M sets, the majority of the respondents mentioned lower incomes than 6000rmb/month; in the L and XL1 sets the majority of the respondents declared incomes of 6000-15000rmb/month; in the XL2 set, the majority of the respondents declared incomes between 15000rmb and 30000rmb. The Chi-Square test of independence concerning these results is highly significant ($\chi^2(24) = 55.918$, $p = .000$), as the p value associated is smaller than .001. It therefore results a strong correlation between the monthly income and the location on the selected segments in the sets.

From the sample to the structured interviews, 73.3% of the respondents did not have and did not work for business activities on the streets segments where they lived.

5.4 Conclusion to Chapter 5

Based on data correlation between interview findings and systematic observations on streets, it emerged that, from the S to the XL2 streets, while living standards increased, social activities on the street decreased (see section 5.2).

Furthermore, overall findings from interviews with residents are summarized below, according to the six liveability qualities assessed through the Methodological Framework of Indicators (see Table 5-1).

5.4.1 Resident perceptions concerning a Local Humanized Environment

Most of the respondents were, at first, satisfied with living on their streets, although some respondents did not pay much attention to the condition of the street, considering it to be 'at the outside' (*wàimiàn de lù*, 外面的路). Some respondents mentioned how they simply got used to the environment around them, embracing the '*meibanfa*' (nothing to do about it). Other common expressions concerning the living experience adjacent to the selected streets were: '*fangbian*' (convenient) and '*hai keyi'* (it is fine, it is ok). However, as the discussion advanced, several inconvenient aspects were also revealed. The inconveniences concerned especially: the housing conditions; the numerous parked vehicles occupying the space of the street; the narrow streets or narrow pedestrian paths; the crowded segments with both vehicles and people (such as on Penglai Road, S set; Shaanxi South Road, M set; Rushan Road, XL1 set); the many and speeding cars (on Shangcheng Road, XL1 set; Pudong South Road, XL2 set); the too long distances to walk between intersections (on Xietu Road, L set; Pudong South Road, XL2 set); the limited green spaces. The issue of the high number of public bikes and e-bikes was often mentioned on all the segments. Furthermore, some of the main traffic generators were considered to be the schools and the kindergartens located in the nearby areas.

Concerning improvements, some respondents considered it was not their business to suggest improvements, as the street belonged to the government. Nevertheless, other respondents made reference primarily to the housing conditions. Concerning older buildings, it was common for the residents to suggest operations of demolition and rebuilding. Furthermore, whenever people had any issues with the

street circulation, the instinct was to ask for widening the road, be it for pedestrian use or for added parking spaces. The respondents had expectations for streets with less or with fluent traffic, with less parked vehicles, with more convenient access to transport (especially in the XL2 area), as well as for more convenient possibilities to cross the streets, especially for the elderly and for children.

5.4.2 Resident perceptions concerning Physical Facilities for Living and the Mix of Uses

Despite the critical situation concerning the physical facilities for living on the S streets, some respondents also mentioned satisfactory facilities, including the good schools (which were determining people to buy apartments in this area) the shops, the access to internet.

Furthermore, in most of the areas built before the 1980s, some respondents compared their living conditions with the surrounding areas built more recently, often expecting demolitions and reconstructions.

Besides dissatisfactions concerning the old houses, along with the small living spaces, other dissatisfactions concerned not having enough shops on the segment. In the end, of high importance to people was to have good education centres in proximity, green spaces, good amounts of shops, markets, eating places and convenient transportation options, independent of the place where they were living.

5.4.3 Resident perceptions concerning Local Economic Activities

Closing-down the small shops from the government's order brought inconvenience to both the shop owners (that wished to be able to freely conduct their businesses on the street) and to residents, as customers (missing the quick and cheap services near-by).

Overall, the residents appreciated the convenience of the economic activities situated on their streets; however, when less commerce was on a street segment, the residents could often find a diverse supply of goods in the surrounding areas, as well as through online delivery services, as some informants mentioned. Nevertheless, when commerce was intense on some segments, some residents referred to the street as crowded; on the other hand, the shop keepers hoped to attract more and more customers.

5.4.4 Resident perceptions concerning Safety

Shanghai was considered one of the safest places for living in China; nevertheless, most respondents would not let their children play on the street without supervision. However, having people watching the street has been acknowledged by several respondents as being the element that insured safety on streets.

Furthermore, traffic seemed to occasionally be a safety concern for the elders when crossing the streets. A measure to keep the street safe from traffic in some respondents' views was to keep the circulation modes separated, without interference, especially concerning e-bikes.

5.4.5 Resident perceptions concerning Social Interaction and Public Life

The expectations from the street environment varied among different groups of people and there sometimes resulted contrasting opinions concerning the activities taking place on the street. However, complains on the lack of human activities on some segments have also been recorded.

Based on the responses to drawing questions, the home territory area often coincided with the area where people developed friendship relations. Furthermore, for the most sociable respondents, social relationships were often formed across the entire compounds and also on the other side of the street on all the S, M, L, XL1 and XL2 streets.

A deduced social issue concerned the growing number of migrant workers, for reasons of cleanliness, for not having a proper behaviour, for not being polite, or for adding to the crowded traffic and to the decline of the physical environment. However, some of the migrant residents interviewed were also not satisfied with their living conditions, but they had to accept it due to circumstances.

Overall, on most of the selected segments, both newcomers and people that lived on their street for a longer period of time have been encountered. A good dynamic of incoming inhabitants was revealed even in old living areas, be it for economic or accessibility reasons.

5.4.6 Resident perceptions concerning Sense of Place and Belonging

The ‘cleanliness’ on the street was important for some residents, either concerning rubbish (especially on the S segments) or the disorganized street space. Nevertheless, as the residents did not consider the street was belonging to them, they did not feel responsible for the cleanliness or the maintenance of the street.

Most of the respondents were not bothered by the noise, even on the higher traffic segments, but this was also depending on where the respondents lived within the compound, closer or further from the street.

The preferred meetup places was the street itself, where the small shops were meeting points on a continuous basis, especially on the S and M streets. Nevertheless, some people considered it was more appropriate to meet on the lane, in the park, at a restaurant or at home, for reasons related to quietness, to the available seating, but also to the culture of the native Shanghai residents.

Among the answers to the drawing questions, larger home territories or larger areas with friends resulted on: Xicangqiao Road, Wenmiao Road, Penglai Road (S set), Jiashan Road, Xiangyang Road (M set), Mengzi West Road, Liyuan Road (L set), Qixia road, Rushan Road (XL1 set). None of these segments had very high traffic volumes.

The way the residents pictured their street concerned many times their housing conditions, but also the available green spaces, the people living in the surroundings, the facilities and the available transport, as well as the parked vehicles occupying the space. Additionally, some residents seemed to be aware of some of the special architectural elements, indicating a sense of pride. In drawings summarizing the memory of the street, major roads and points of interest have been represented, including: elderly activity centres, parks, car parking, bus stops, places to eat, to shop, to exercise, but also street trees.

6 FINDINGS FROM SYSTEMATIC OBSERVATIONS ON STREETS

6.1 Introduction to Chapter 6

In this data chapter, the detailed findings resulting from systematic observations on the selected S, M, L, XL1 and XL2 street segments (Figure 6-1) are presented. For the summarised correlation of observational data with interview data, please see Chapter 5, section 5.2.

The chapter is organized in two parts: a first part with indicators that have been aggregated to make comparisons across all the selected segments; another part with features particularizing each segment. The data is unfolded following the indicators in the Methodological Framework of Indicators, as indicated in Table 6-1.

Table 6-1: Indicators assessed through systematic observations (extract of the Methodological Framework of Indicators)

FRAMEWORK of INDICATORS assessed through SYSTEMATIC OBSERVATIONS		
QUALITIES	**FACTORS**	**INDICATORS**
Local Humanized Environment	Accessibility and transport	*spatial accessibility / accessibility to public transport options and to district services*
	The road attributes	*intersections / lengths of segments (blocks) / roadway width / car lanes / bike lanes / directions / traffic composition/ parking/ obstructions / roadway condition / traffic control devices / average speeds / volumes of traffic*
	The pedestrian environment	*pavement width/ walkway condition / obstructions / street furniture / crossing aids / barriers + buffers / facilities for the disabled / lighting / green spaces along pavements/ street trees / proportion of shaded pavement*
	Morphology and aesthetics of buildings and blocks	***historical period of development** / setback / building heights/ building height to street width ratio / linkage to the street (number of entrances) /lanes and alleys within blocks/ building coverage/ FAR / enclosure / complexity / transparency / human scale / landmarks /*

FRAMEWORK of INDICATORS assessed through SYSTEMATIC OBSERVATIONS		
QUALITIES	**FACTORS**	**INDICATORS**
Facilities for living and the mix of uses	Land uses, services and amenities	***uses, facilities and amenities on the segment / active ground floors***
	Green and open spaces	*green spaces within residential compounds / parks in proximity*
Local Economic Activities	Businesses on the street	***economic profiles of the businesses/ the social classes targeted by the businesses / informal economic activities and ambulant vendors / illegal economic activities***
Safety (safety in living and from traffic)	Correct use of the streetspace	*aggressive road users / the response to traffic rules*
	Security eyes on the street	*presence of security guards and policemen / security cameras*
Public Life and Social Interaction	Opportunities for interaction	***human activities on the street**/ outdoor (dining) tables and seats /*
	People on the street	*population density / numbers of pedestrians passing-by*
Sense of Place and Belonging	The identity of the streetscape	*street distinctiveness (the potential cultural identity of the street) /* ***identity through perception senses***
	Involvement of the community	*cleanliness and sanitation on the streets / local gatherings*

* *indicators presented aggregated, for comparisons between streets segments*

*****particularizing indicators, presented on each street segment***

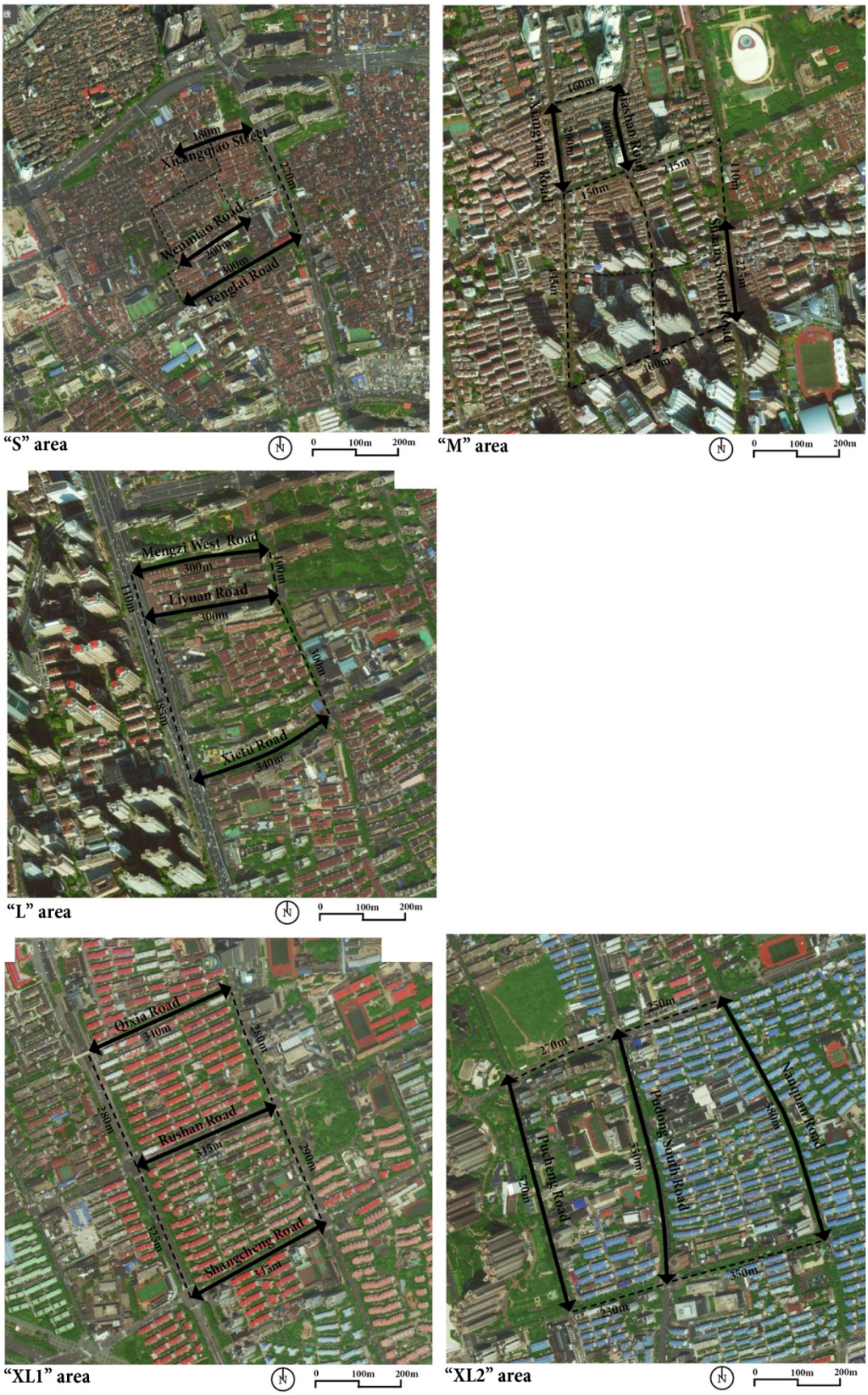

Figure 6-1: Segment lengths and block sizes in S, M, L, XL1 and XL2 areas; Satellite image: Baidu, 2016

6.2 A Local Humanized Environment

6.2.1 Accessibility and transport

6.2.1.1 Indicator: Spatial accessibility

In Figure 6-2, the spatial accessibility within the Inner Ring Road area of Shanghai analysed using the Space Syntax tool is presented. The analysis has been extracted from the press (see Liu for China Daily, 2013), interpreted based on the commonly used Space Syntax color-coded legend (Hillier, 2014).

Figure 6-2: Spatial accessibility in Shanghai based on Space Syntax analysis; Source: Liu, 2013; Hillier, 2014

On the Space Syntax analysis map, letters have been added to indicate the position of the S, M, L, XL1[69] and XL2 areas. As it can be seen in Figure 6-2, most of the selected segments have a medium spatial accessibility in the wider road network, being represented with shades of green. A higher spatial accessibility had

[69] An inaccuracy of the Space Syntax map is that Qixia Road (XL1 set) does not appear on the map, for which a cause might have been the ongoing constructions of the Dalian Tunnel. However, at the time of the study, Qixia Road allowed vehicular traffic.

Xietu Road (L set), Penglai Road (S set) and Pudong South Road (XL2 set), represented with shades of yellow and orange.

All the selected segments are well integrated in the urban road network, with no dead ends, having in proximity arteries with very high spatial accessibility.

6.2.1.2 Indicator: Accessibility to public transport and to district services

Despite the extended metro network, not all the residential areas were located within 500m-600m of a metro stop, as it could be particularly identified in the case of Shangcheng Road (XL1 set), Pudong South Road, and Pucheng Road (XL2 sets). However, all the selected segments were located within 300m from a bus stop, allowing comfortable walking to transit stops. Furthermore, as visible in Figure 6-3, for all the segments in the S, M, L, XL1 and XL2 sets, there was a good connectivity to a wide range of district-level services. However, more numerous and more diverse district-level services and interest points have been identified around the S and M sets.

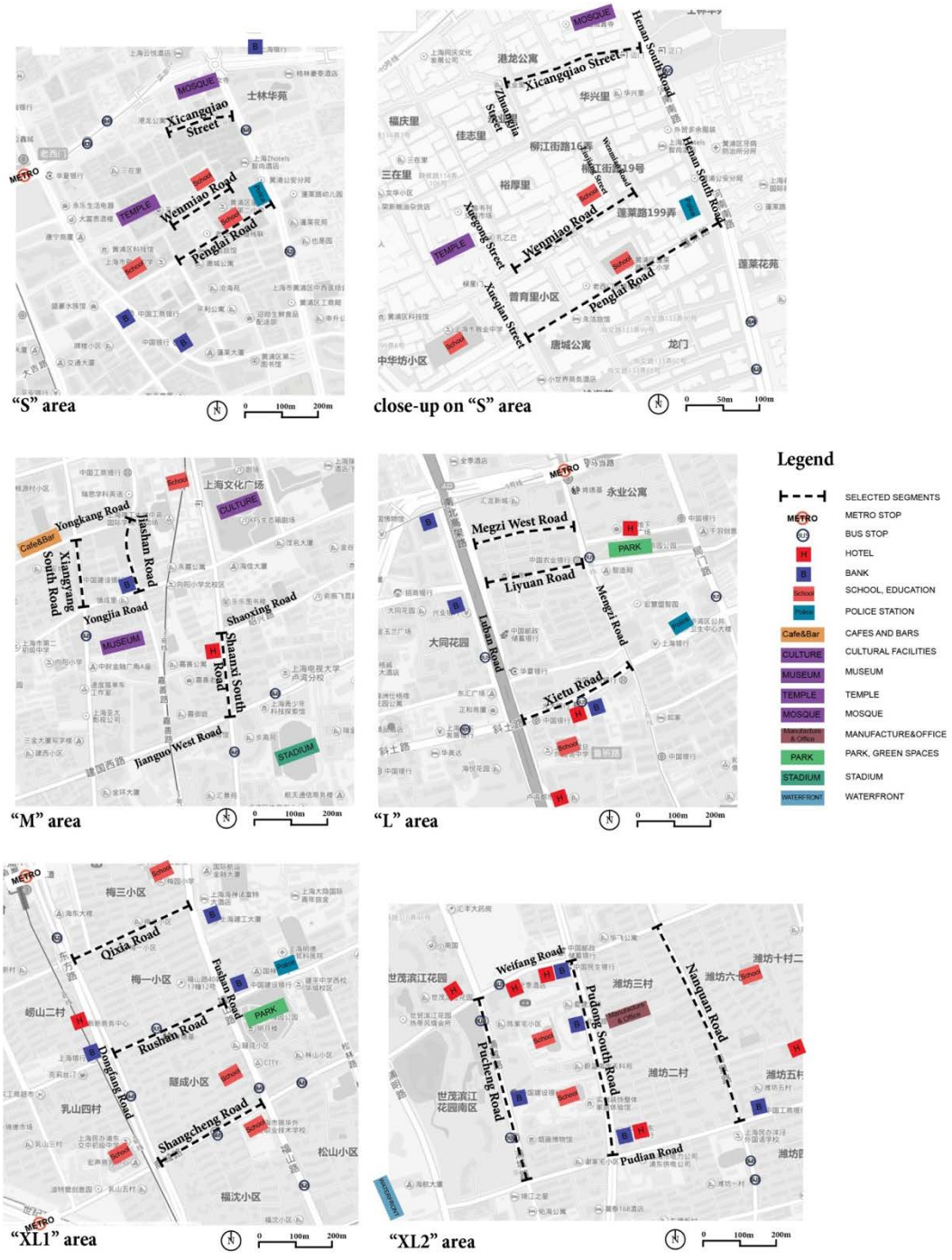

Figure 6-3: Accessible services and public transport in the S, M, L, XL1, XL2 areas

Table 6-2: Road attributes on the selected segments

		S			M			L			XL1			XL2		
		Xicangqiao Street	Wenmiao Road	Penglai Road	Jiashan Road	Xiangyang Road	Shaanxi South Road	Mengzi West Road	Liyuan Road	Xietu Road	Qixia Road	Rushan Road	Shangcheng Road	Pucheng Road	Nanquan Road	Pudong South Road
Traffic volume		low	medium	high	low	medium	high	low	medium	high	low	medium	high	medium	low	high
ROAD ATTRIBUTES																
Segment intersections		"+"; "T"	"T"	"+"	"+"; "T"	"+"	"+"; "T"	"T"	"+"	"+"	"T"; "other"	"+"	"+"	"+"; "T"	"+"	"+"
Lengths of segments		180m	200m	300m	200m	200m	225m	300m	300m	340m	340m	345m	345m	520m	580m	550m
Roadway width (average, approx.)		4m	5m	7m	8m	9m	11m	11m	14m	20m	10m	15m	15m	14m	11m	26m
Number of car lanes		1 lane	1 lane	2 lanes	2 lanes	2 lanes	3 lanes	2 lanes	2 lanes	>4 lanes	2 lanes	3 lanes	3 lanes	3 lanes	2 lanes	6 car + 2 bus lanes
Presence of designated bike lanes		none	none	none	one side	both sides	one side	none	both sides	both sides	none	both sides	both sides	both sides	none	none
Directions	2 ways cars															√
	2 ways car+1 way bikes				√											
	1 way cars+2 ways bikes					√						√	√			
	2 ways cars +2 ways bikes			√				√	√	√	√			√	√	
	1 way car+1 way bikes						√									
	occasionally for car + accessible for bikes	√	√													
The condition of the roadway		fair	good	good	good	good	good	good	good	good	good	good	good	good	good	good
Obstructions on		Roadway	Roadway	Roadway	Bikeway	Bikeway	-	Roadway	Bikeway	Bikeway	Roadway	Bikeway	Bikeway	Bikeway	-	-
What Obstructions	Parked cars/bikes	√	√	√	√	√		√	√	√	√	√	√	√		
	Trash Cans	√	√	√	√	√		√		√						
	Shop goods	√						√		√						
	None						√								√	√
On-street parking [Illegal parking on street/bikeway; Designated parrallel or diagonal parking; None]		Illegal (1 car)	Illegal	Illegal	Illegal	Illegal	None	Designated parking	Allowed side stopping	Illegal	Designated parking	Illegal (1 car)	Allowed side stopping	Allowed side stopping	None	Designated parking, but on sidewalk
Traffic control devices		none	none	traffic light	traffic light	traffic light	traffic light	stop signs	traffic light	traffic light	traffic light	traffic light	traffic light	traffic light	traffic light	traffic light
Posted speed limit		-	-	-	-	-	-	30km/h	30km/h	-	-	40km/h	-	30km/h	-	-
Average speed of moving cars		<20km/h	<20km/h	30-40km/h	30km/h	40km/h	40-45km/h	30-40km/h	40km/h	50-60km/h	20km/h	45-50km/h	45-50km/h	40km/h	30km/h	50-60km/h

6.2.2 Road attributes

The road attributes of the selected segments are summarized in Table 6-2 and the most important characteristics are presented below.

6.2.2.1 Indicators: Intersection types, Segment lengths (block sizes)

Most of the selected segments were bordered by cross intersections or three-way intersections. Exceptions made three segments: Wenmiao Road (S set, where the segment ended at a 90º turn of the street); Mengzi West Road (L set) and Qixia Road (XL1 set), where drivers were required to make a right turn at one segment end, due to tunnels or highways entrances.

The lengths of the selected segments were generally increasing from the S segments to the XL2 segments. The selected S and M segments had lengths of 180m-300m; the selected L and XL1 segments had lengths of 300m-345m; the selected segments in the XL2 set had lengths of 520m-580m (see Table 6-2).

6.2.2.2 Indicators: Roadway widths, Car lanes, Bike lanes, Directions, Traffic Composition

The roadway widths varied significantly among the sets of streets, based on their morphological features. Nevertheless, the roadway widths gradually increased from the narrowest S segment (4m) to the widest XL2 segment (26m), as seen in Table 6-2). Depending on the roadway width, the number of car lanes varied, as well as the possibility of having or not separate cycling lanes (see Table 6-2). Furthermore, besides narrow widths, one more reason for not having separated bike lanes was having low traffic volumes (on Mengzi West Road, L set; Qixia Road, XL1 set), or having cycling forbidden (on Pudong South Road, XL2 set). Varying among the selected segments were also the allowed traffic directions, for cars of for bikes (see Table 6-2).

6.2.2.3 Indicators: Parking, Roadway Obstructions, Roadway Condition

On several segments, the cars were allowed to stop on the side, but once there was no designated parking (such as on Mengzi West Road, L set, Qixia Road, XL1 set), the cars occupied the cycling space. In addition, few segments presented designated parking space on the sidewalk (Xietu Road, L set, Qixia Road, XL1 set, Pudong South Road, XL2 set). Furthermore, on the segments with no parking spots, cars stopped illegally, becoming obstacles. Other obstacles on the segments were the

parked two-wheelers, refuse containers and shop goods and these have been recorded on most segments, except the segments with higher traffic volumes, some of whom had narrow road profiles (such as Shaanxi South Road, L set, Nanquan Road, XL2 set, but also Pudong South Road, XL2 set). The condition of the roadway for the selected segments was generally good.

6.2.2.4 Indicators: Traffic Control Devices, Vehicle Speeds

The most common traffic control devices on the segments were the traffic lights, except two segments in the old town that had no traffic control devices: Wenmiao Road and Xicangqiao Street (S set). Occasionally, the police was present at the intersection of important arteries.

Higher vehicular speeds than 40km/h were estimated on Xietu Road (L set), Shangcheng Road (XL1 set) and Pudong South Road (XL2 set), reaching up to 50-60km/h. Speed limits of 30km/h were in proximity to schools, kindergartens, and other education or cultural facilities.

6.2.2.5 Indicator: Traffic Volumes

Significant differences resulted between the volumes of traffic recorded on segments belonging to different morphological areas, as it can be seen in Table 6-3. The general tendency was to have increasing traffic volumes from the S segments to the XL2 segments. To this, an exception has been recorded between the M and L sets, with a higher pressure of traffic on the M segments despite their narrower widths.

Table 6-3: Traffic volumes on selected segments, at different time intervals, during weekdays

			Total volumes of traffic (PCE/h)		
Set	Label	Segment	Morning 8:00am-9:30am	9:30am-11:30am or 1:00pm-4:00pm	Evening 5:30pm-7pm
	low	Xicangqiao Road	54	72	56,4
S	medium	Wenmiao Road	92,4	100,8	86,4
	high	Penglai Road	612	434,4	393,6
	low	Jiashan Road	604,8	508,8	616,8
M	medium	Xiangyang Road	939,6	1060,8	1182
	high	Shaanxi South Road	2028	1548	1827,6
	low	Mengzi W Road	235,2	188,4	280,8
L	medium	Liyuan Road	614,4	723,6	704,4
	high	Xietu Road	1850,4	1668	1629,6
	low	Qixia Road	450	217,2	212,4
XL1	medium	Rushan Road	2010	804	1246,8
	high	Shangcheng Road	1822,8	1294,8	1458
	low	Pucheng Road	1040,4	670,8	842,4
XL2	medium	Nanquan Road	1192,8	745,2	1034,4
	high	Pudong South Road	4042,8	3218,4	3576

Concerning the recorded traffic volumes at different times of the day on each segment, no significant fluctuations resulted, with a few exceptions. The segment with the highest fluctuations of traffic volumes within one day was Rushan Road (XL1 set), with much higher traffic volumes recorded at the morning rush compared to the rest of the day. The morning demand in transit needs on Rushan Road (XL1 set) might have increased after the through circulation of the parallel Qixia Road has been restricted and after the temporary closing of the parallel Pudong Avenue for subway works. Other significant traffic fluctuations within one day were recorded on Shaanxi South Road (M set) and Shangcheng Road (XL1 set). These three segments with high traffic fluctuations had one-way traffic. On Pudong South Road, the highest traffic volumes have been recorded, peaking at 4042,8 PCE/h during the morning rush hour. Nevertheless, the traffic flowed smoothly, without congestion,

indicating that the volumes of traffic were still lower than the overall traffic capacity of the roadway.

Furthermore, for each segment, the values of the total PCE (passenger car equivalent) in 1 hour time have been compared to the numbers of two-wheelers. On the S, M and L segments, the numerous two-wheelers were often competing in numbers with other vehicles. On the XL1 and XL2 segments, the impact of the two-wheelers and their percentage in the total volume of traffic was significantly reduced (Table 6-4).

Table 6-4: Volumes of two-wheelers compared to total traffic volumes (PCE/h)

Sets	Street segments	Total (average) PCE/h	Two-wheelers calculated as PCE/h
S	Xicangqiao Road	60,8	58,8
	Wenmiao Road	93,2	91,2
	Penglai Road	480	390
M	Jiashan Road	576,8	310,8
	Xiangyang Road	1060,8	352,8
	Shaanxi S Road	1801,2	307,2
L	Mengzi W Road	234,8	100,8
	Liyuan Road	680,8	328,8
	Xietu Road	1716	408
XL1	Qixia Road	293,2	121,2
	Rushan Road	1353,6	333,6
	Shangcheng Road	1525,2	265,2
XL2	Pucheng Road	851,2	163,2
	Nanquan Road	990,8	454,8
	Pudong S Road	3612,4	164,4

The general roadway features on the selected segments can be understood from the segment images in Figure 6-4.

Figure 6-4: Transversal profiles of selected streets; Source: Baidu 360º pictures, 2016

Table 6-5: Characteristics of the pedestrian environment

		S			M			L			XL1			XL2		
		Xicangqiao Street	Wenmiao Road	Penglai Road	Jiashan Road	Xiangyang Road	Shaanxi South Road	Mengzi West Road	Liyuan Road	Xietu Road	Qixia Road	Rushan Road	Shangcheng Road	Pucheng Road	Nanquan Road	Pudong South Road
Traffic volume		low	medium	high	low	medium	high	low	medium	high	low	medium	high	medium	low	high
PEDESTRIAN ENVIRONMENT																
Width of walkway (approx.)	dominating/average	20cm	1m	0,75	2.25m	2.25m	2.20m	3m	4m	3.5m	2m	2m	1.80m	3.5m	2.75m	2.5m
	maximum	30cm	2m	4m	3m	4m	4m	5m	5m	6m	5m	5m	2m	8m	5.5m	4m/10m
	minimum	0m	0m	0.5m	2m	2m	1.5m	2.25m	2.5m	3.5m	1.3m	1.3m	1.5m	4m	2m	1.3m
The condition of the walkway		fair	fair	fair	fair	good	good	good	good	good	good	good	good	good	good	good
Obstructions on the walkway	Parked cars/bikes	√	√	√	√	√	√	√ - one side	√	√	√	√	√	√	√	√
	Trash Cans	√	√	√	√		√	√ - one side	√			√		√		√
	Shop goods	√	√	√	√	√	√	√ - one side	√	√	√	√	√		√	
	Pillars/cables	√														
	Informal Vendors	√			√						√	√				
	Trees/ branches/leaves									√					√	√
	Other (bikes repair?)				√		√	√ - one side						√ - one side		
	Other (car washing)									√				√		
How many times was it needed to leave the walkway because of obstructions?		could not walk	could not walk	could not walk	never	never	never	1-3 times on one side	never	never	never	never	never	never	never	never
Street furniture	Little/no urban furniture	√	√													
	Benches							√				√			√	
	Public trash cans	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Bikes parking			√	√	√	√	√	√	√	√	√	√	√	√	√
	Public toilet		√	√		√	√				√			√		
	Bus stops (how many)									1		1	2	2	2	3
	Public info display									√		√	√	√	√	√
	Public phone							√					√			√
Any crossing aids for pedestrians?		none	none	zebra	zebra	zebra	zebra	zebra	Signs, zebra	Signs, zebra	Zebra, overpass	Signs, zebra	Signs, zebra	zebra	zebra	Signs, zebra
Are there barriers that prevent pedestrians to cross the street?		none	none	none	none	none	side fences	fences on one side	none	median fences; bikeway fences	none	side fences; bikeway fences	none	none	none	median fences
Buffers between roadway and pathway?		none	none	none	none	none	Fence	Fence on one side	none	Fence	none	Fence	none	none	none	none
Facilities for the disabled - curb cuts on footpath		yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Lighting	Road oriented	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
	Pedestrian oriented													√ (in square)		
	Other lighting (from shops, on fences)	√	√	√	√	√	√	√ (from fence)	√	√	√	√	√(very little)	√	√	√
Are there alignment trees?		None or very few	None or very few	Some	Some	Many & dense	Many & dense	Some / Many	Some	Many & dense	Many & dense	Many & dense	Many & dense	Many & dense	Many & dense	Many & dense
Proportion of shaded walkway	On one side	30-40%	>50%	40-50%	40%	>50%	>50%	>50%	50%	>50%	50%	50%	70%	60%	60%	60%
	On the other side	30-40%	>50%	40-50%	40%	>50%	>50%	40%	40%	>50%	60%	60%	70%	60%	60%	60%

6.2.3 The pedestrian environment

The indicators assessed concerning the pedestrian environment are detailed in Table 6-5 and the most important characteristics of the pavements are presented below.

6.2.3.1 Indicator: Pavement Widths

The widths of the pedestrian paths on the 15 selected segments varied considerably, based on the morphological areas to which they belonged. In this manner, while in the S set, some pavement portions were too narrow for walking (less than 0.75m) or were missing, the pavements increased considerably across the other sets, reaching in the XL2 set to up to 10m (see Table 6-5).

6.2.3.2 Indicators: Walkway conditions, Walkway obstructions, Street furniture, Crossing Aids, Buffers, Facilities for Disabled

The condition of the walkway was generally fine on the selected segments, although common obstacles on the sidewalks were encountered, such as parked vehicles, refuse containers and shop goods. The most common street furniture included garbage bins and designated parking for bikes, while few segments additionally had bus stops or public phone booths.

The crossing aids for pedestrians were mainly in the form of zebra crossings and signage. Exceptions were two segments in the old town (Wenmiao Road, Xicangqiao Street, S set) with no crossing aids, and Qixia Road (XL1 set) that had an overpass for pedestrians and bikes across Dalian Tunnel at the western end of the segment.

Furthermore, the separating fences encountered between different types of circulation (see Table 6-5), were partially restraining people from crossing the roads, but actually, people crossed randomly wherever they found gaps. An exception was Pudong South Road (XL2 set), with no fences, but, by being very wide and having very high volumes of traffic, the people have not been seen taking the risk of crossing randomly.

On all the street segments there were curb cuts, that could be considered facilities for the disabled, but they were actually used more by the two-wheelers riding on the sidewalks.

6.2.3.3 Indicator: Lighting conditions

The designated public lighting on all the segments was mainly road oriented. Additional lighting sources on the sidewalks were coming from the shop windows, from advertisements, from ambulant vendors, as seen in Figure 6-6. The segments with the least number of shops (Shangcheng Road, XL1 set; Pucheng Road, XL2 set), were also those with insufficient amount of lighting on walkways. Furthermore, the lighting features with landscaping effects, placed on the fences of higher-class compounds or in adjacent squares (on one side of Mengzi West Road, L set; on one side of Pucheng Road, XL2 set), did not improve the visibility at night-time. Other lighting effects have also been used to highlight architectural features (the pitched roofs on Rushan Road and Shangcheng Road, XL1 set).

6.2.3.4 Indicators: Green spaces along pavements, Street Trees, Shaded Pavement

The green and open spaces along the segments were in the form of: front gardens visible from the street, narrow stripes of greenery along the compound walls or along the buildings, small public squares. The least amount of green and open spaces on the block faces had the S and M segments, due to the high building coverage (see also section 6.2.4.3). Furthermore, Wenmiao Road and Xicangqiao Street (S set) had no street trees. All the other segments had street trees in various amounts (see Table 6-5, Figure 6-4, Figure 6-5), of whom distinct were the plane trees on the M segments and the dense street vegetation on the XL2 segments. Depending on the amount of street trees, but also on the heights of the buildings, the proportion of the shaded pavements on the selected segments was generally over 40%.

Characteristic images of the walkways of the selected segments can be seen in Figure 6-5 and Figure 6-6.

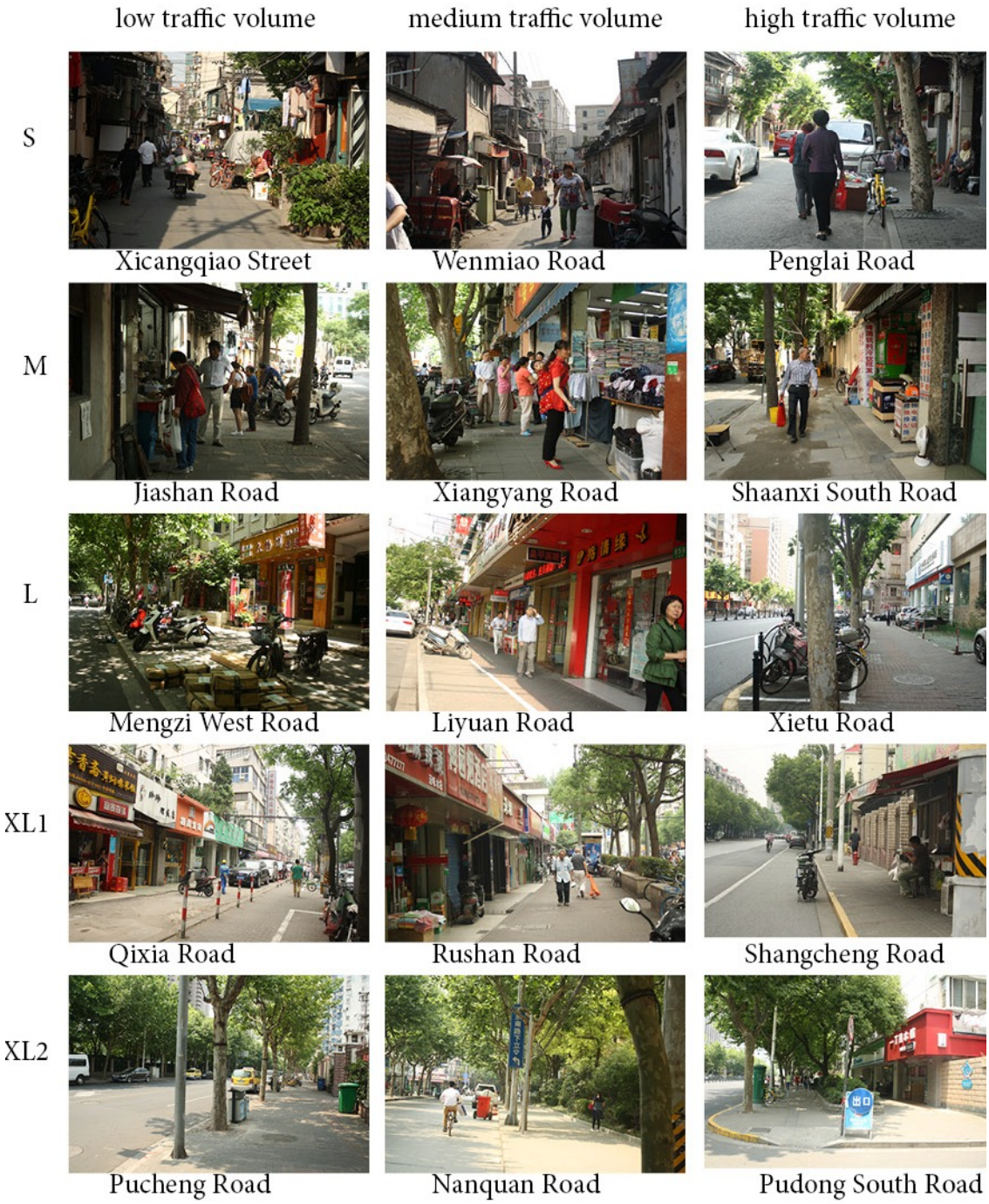

Figure 6-5: Characteristic images of pedestrian environments at daytime

Figure 6-6: Characteristic images of pedestrian environments at night-time

.

Table 6-6: Morphological characteristics of areas bordering selected streets

		S			M			L			XL1			XL2		
		Xicangqiao Street	Wenmiao Road	Penglai Road	Jiashan Road	Xiangyang Road	Shaanxi South Road	Mengzi West Road	Liyuan Road	Xietu Road	Qixia Road	Rushan Road	Shangcheng Road	Pucheng Road	Nanquan Road	Pudong South Road
Traffic volume		low	medium	high	low	medium	high	low	medium	high	low	medium	high	medium	low	high
MORPHOLOGY OF BUILDINGS AND BLOCKS																
Building setback from sidewalk		At edge	At edge	Within 5m; At edge	At edge	At edge	At edge	5m-10m (one side); At edge (Other side)	5m-10m; At edge	5m-10m; At edge	Within 5m; At edge	Within 5m; At edge	5m-10m; Within 5m; At edge (shops)	> 10m; at edge (shops)	within 5m (dominate); At edge	> 10m; within 5m; few at edge
The average height of buildings		P+1;P+2; P+6	P+1;P+2; P+6	P+1; P+5; P+27	P+1;P+2; P+28	P+1; P+5	P+3-4-5	P+5; P+30	P+5; P+30	P+5; P+21; P+23	P+4,P+5	P+5	P+5; P+15	P+15; P+25; P+45; P+50	P+4,P+5; P+21	P+5; P+20; P+23
The building height to street width ratio		1:1 ; 4:1	1:1 ; 2:1	1:1 ; 2:1 ; 4:1	1:1 ; 3:1	1:1 ; 2:1	1:1 ;	2:1;	2:1;	2:1 ; 1:1.5	1:1;	1:1;	1,5:1 ; 1:1	2:1 ;	1:1; 2:1	1:1 ; 1,5:1
The number of entrances to residential buildings/compo	On one side	11	13	12	5	3	6	1 (new side)	3	7	12	3	2	1 for cars + 2 blocked	6	6
	On the other side	20	21	5	8	4	3+2blocked	8 (old side)	4	3	5	4	8	4 + 1blocked	5	7
Pedestrian lanes inside the block	On one side	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	no	yes	yes & no
	On the other side	yes	yes	yes	yes	yes	yes	no	no	no	yes & no	yes	yes & no	no	yes & no	yes & no
The degree of enclosure		Highly enclosed	Highly enclosed	Highly enclosed	Highly enclosed	Highly enclosed	Highly enclosed	Some enclosure	Some enclosure	Some enclosure	Some enclosure	Some enclosure	Some enclosure	Little or no enclosure	Some enclosure	Little or no enclosure
Complexity in building designs		High complexity	High complexity	High complexity	High complexity	High complexity	High complexity	Some complexity	Some complexity	Some complexity	Some complexity	Some complexity	Little or no complexity	Little or no complexity	Some complexity	Some complexity
Transparency of the street fronts		High transpa-rency	High transparency	High transpa-rency	High transpa-rency	Medium transpa-rency	Medium transpa-rency	Medium & low transparenc	Medium transpa-rency	Medium transpa-rency	Low transpa-rency	Low transpa-rency	Low transpa-rency	Low transpa-rency	Medium transpa-rency	Low transpa-rency

Figure 6-7: Buildings outline in the S, M, L, XL1 and XL2 areas

6.2.4 Morphology and aesthetics of buildings and blocks

The data collected for the indicators assessed under the factor of morphology and aesthetics can be seen in Table 6-6.

6.2.4.1 Indicators: Setbacks, Heights, Building Height to Street Width Ratio

The building setback, as well as the building heights, gradually increased from the S streets to the XL2 streets. The S and M segments were bordered predominantly by low-rises of 2 to 5 floors with most of the buildings aligned to the street. On the S and M segments, exceptions were mid-rise insertions (of 6-7 floors) and two high-rise insertions (up to 29 floors), some of whom were built within 5m from the street. The dominant building height to street width ratio on S and M segments was of 1:1, with a few portions of 2:1. Exceptions of 3:1 and 4:1 were encountered on the portions with the newly inserted high-rises.

On the L and XL1 streets the setbacks were varying more compared to the S and M segments. While the mid-rise buildings with commercial ground floors were aligned to the street, other mid-rises were built within 5m from the street. Furthermore, on the L streets the high-rises were dominant, and were built within 5-

10m from the street. On the segments in the L set the resulting ratios varied between 1:1.5 and 2:1. In the XL1 set, the dominant ratios were of 1:1.

The setbacks in the XL2 set, although varying (see Table 6-6), grew larger than 10m in the case of high-class high-rises. Additionally, on the XL2 streets much less commercial ground floors were encountered compared to the other streets. Nevertheless, both high-rises and mid-rises were encountered on the XL2 segments, and the calculated ratios varied between 1:1, 1.5:1 and 2:1.

The display of buildings (building outline) in relation to the street can be understood from Figure 6-7. The skyline can be seen in Appendix E1.

6.2.4.2 Indicators: Linkage to the street, Lanes and alleys within blocks

The linkage to the street had a general tendency of decreasing from the S set to the XL2 set. Nevertheless, many compound entrances were blocked.

Additionally, the tendency was to have higher linkage to the street from the compounds that were organized on lanes (dominant in the S, M, XL1 areas). In contrast, when the residential blocks were organized as high-rise enclaves, there were fewer entry-exit points (especially in the L and XL2 areas).

6.2.4.3 Indicators: Floor Area Ratio (FAR), Building Coverage

The low-rise buildings in the S set had a building coverage of 60-70% and FAR values of 1.2-1.7. In the M set, the building coverage was estimated at 50-60%, with an FAR of 1.2 to 2. In the S and M areas, there were also two high-rises inserted with FAR values reaching 5. The only areas that were less intense built in the S and M areas were the school grounds (see Figure 6-8).

In the L set, lower building coverages, of approximately 40% in the mid-rise areas and of 15-20% in the high-rise compounds were encountered. The dominant FAR values were between 2 and 3.5, but also grew to 4.5 or more.

In the XL1 area, the building coverage of the mid-rises was of approximately 30%, the building coverage of the high-rises was of 15%, while the dominant FAR value was of 2.

The building coverage was also lower around the XL2 segments: from 40% to 50% in the case of the early built mid-rises (1970s), to 30% in the case of the later built mid-rises (1980s), to 10-15% on the high-rise plots built after 1980s. The FAR values were accordingly differing from 1.7, to 2.2, to 3.6, to 4, or 5.

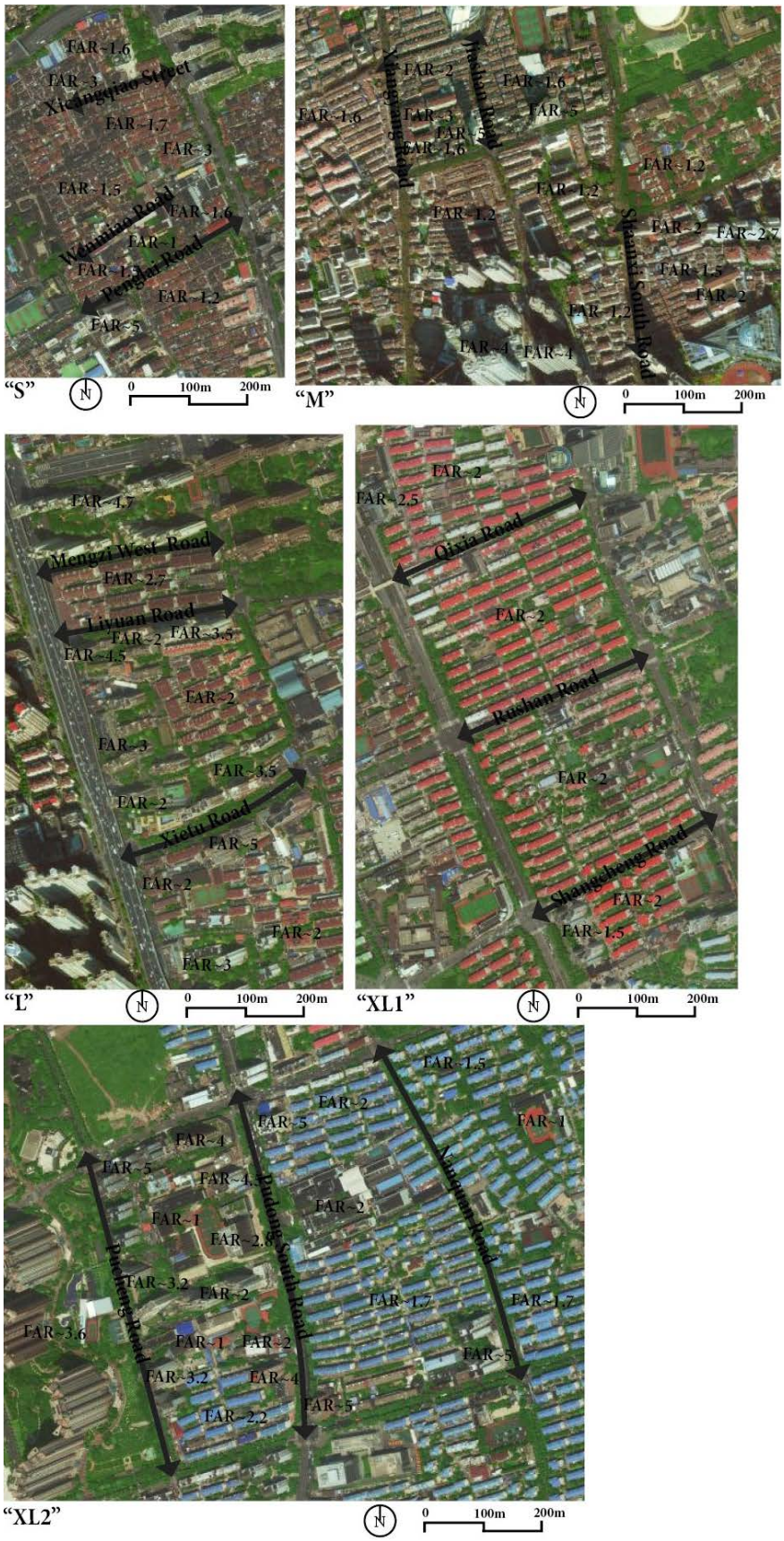

Figure 6-8: Estimation of FAR (Floor Area Ratio); Satellite Images: Baidu 2016

6.2.4.4 Indicator: Degree of Enclosure

The street segments in the S and M sets were highly enclosed. The rest of the segments in the L, XL1 and XL2 sets presented moderate enclosures. Exceptions were Pudong South Road and Pucheng Road (XL2 set), with very wide roadways and large setbacks, with wide-open distances between buildings, leading to low enclosure, despite the presence of street trees.

6.2.4.5 Indicator: Degree of Complexity

The segments in the S and M areas had high complexity, considering especially the embossments, ornaments and details of the old buildings and of the entrance gates, but also the high diversity of human activities that took place on these segments. The degree of complexity decreased in the L, XL1 and XL2 sets. On the segments in the L set there was some complexity given by the human activities, by the small shops and by the different types of buildings (more on Xietu Road). In the XL1 set, the diversity of the small shops and of human activities added complexity to Rushan Road and Qixia Road; however, on Shangcheng Road there was little complexity due to the uniform style of building and reduced human activities. In the XL2 set, on Pudong South Road there was some complexity given by the diverse bordering buildings. On Pucheng Road, due to the uniformity of the buildings and to the limited human activities, the overall feeling was of little or no complexity. On Nanquan Road, despite the uniformity of the buildings, some complexity was given by vegetation, by shops and human activities.

6.2.4.6 Indicator: Transparency from the street

In the S set, many daily activities were pursued directly on the street. Despite adding drapes to entrance doors for some privacy in houses, the degree of transparency and the perception of human habitation was very high.

On Jiashan Road (M set), similarly to the S segments, daily activities were conducted on the street, giving a high degree of transparency to the segment. Shaanxi South Road (M set) offered some transparency near lane entrances, however an overall medium transparency was encountered. Similarly, on Xiangyang Road, considering on one hand the shops that provided signs of habitation, and on the other hand the less visible compound entrances, an overall medium degree of transparency resulted.

In the L set, on Liyuan Road and Xietu Road a medium degree of transparency was encountered. On Mengzi West Road, the degree of transparency on the two sides differed: the side of the medium-income housing had a medium degree of transparency, while the side of the high-class compound had a low degree of transparency considering especially by the 2m walled fence towards the street.

The segments in the XL1 set had lower degrees of transparency, with narrow entrance gates, through which there could be seen limited habitation signs. This was especially evident on Shangcheng Road (XL1 set), because on Rushan Road and on Qixia Road (XL1 set) the shops on the street attracted human activity around them.

Low and medium degrees of transparency were also recorded on the segments in the XL2 set. On Pudong South Road and Pucheng Road, very few signs of habitation were encountered on the street or in the immediate surroundings. On Nanquan Road (XL2 set), the ends of the segment were more animated with shops and human activities around them, resulting in an overall medium degree of transparency.

6.2.4.7 Indicator: Human Scale (the scale of the built environment)

On the S and M streets, the physical environment was at human scale. In the L set, the influences of the socialist planning principles were stronger, and therefore the physical environment had an overall modernist-socialist scale. Nevertheless, on Liyuan Road and Mengzi West Road (L set), elements such as small shops, street trees, chairs, counterbalanced the modernist-socialist scale of the built environment.

In the XL1 set, although all the segments were bordered by mid-rise buildings at a modernist-socialist scale, on Qixia Road and Rushan Road, the shops, the activities, and the diversity of elements on the streets gave the overall feeling of human scale.

On Pudong South Road (XL2 set), dominant was the automotive scale, as the space was organized with massive buildings and advertisements to be perceived at vehicle speeds. On the segment of Nanquan Road (XL2 set) there was a human scale given by the narrow road profile and by the dominant mid-rise buildings bordered by vegetation. On Pucheng Road (XL2 set), the scale was modernist-socialist, with buildings that were far from the street.

6.2.4.8 Indicator: Landmarks

On all the selected segments, local landmarks, consisting of shops, small restaurants, gambling centres, or bank branches have been identified. Additionally, distinct buildings that could be regarded as district landmarks have been identified, including: schools and education centres (S, XL1, XL2 set), cultural-touristic landmarks and specific *lilong* architecture (S, M sets), cultural centres (L, XL2 sets), hotels (L, XL1, XL2 sets).

Other district-level landmarks were visible from the segments, consisting mainly of parks (around the L and XL1 sets). City-level landmarks were visible in proximity of the S segments (for instance temples) and of the XL1 and XL2 segments (the Lujiazui Financial Centre with the three iconic Shanghai skyscrapers).

6.3 Physical Facilities for Living and the Mix of Uses

6.3.1 Land uses, services and amenities

6.3.1.1 Indicators: Uses, facilities and amenities on the segment

In terms of public amenities, all the selected segments were paved and had transport possibilities within 300m-500m. However, in what concerns the basic living facilities, in the S area, and partially in the M area, the private toilets, single-family kitchens and the centralized gas system (especially in the S area) were missing. Particularising uses and amenities on each segment are presented in more detail in section 6.8.

6.3.2 Green and open spaces

6.3.2.1 Indicators: Green coverage, Types of green spaces within compounds, Public parks in proximity

Around the S and M segments, the green coverage in proportion of 10-15% or less included mainly school grounds, which were not accessible to residents. In addition, around the S and M areas, there were public gardens with paid access or small parks with free access within 500m or 1km from the living areas.

Within the XL1 set, the green coverage was in proportion of 30-40% within blocks. Other green squares or parks with public access were located within 500m from the XL1 segments.

In the L and XL2 sets, there were significant differences between the mid-rise compounds and the high-rise ones: the mid-rise compounds had pocket green spaces

(with a green coverage of approximately 30%), while in the high-rises compounds, residential towers were surrounded by lushes of greenery (with a green coverage of 40-50%, or higher in the case of the XL2 segments - such as Shimao Riviera Garden with a green coverage of 70% of the block surface). However, while on the L set the closest park was within 500m from all the segments, the distances to other parks and green areas grew in the XL2 set to 1km-1.2km from the segments. Furthermore, although the XL2 segments were closer to the riverside, being privatised and under construction the access to it was blocked. Furthermore, the pocket square on the north-west corner of Pucheng Road was not accessible to the public.

The green coverage within the blocks in the S, M, L, XL1 and XL2 areas can be seen on the satellite maps extracted in Figure 6-1.

6.4 Local Economic Activities

6.4.1 Businesses on the segment

As visible in Figure 1, all the selected street segments were located in areas with the highest GDP (Gross Domestic Product) values in Shanghai Metropolitan Area, which could also indicate a thriving economic activity and a thriving business environment.

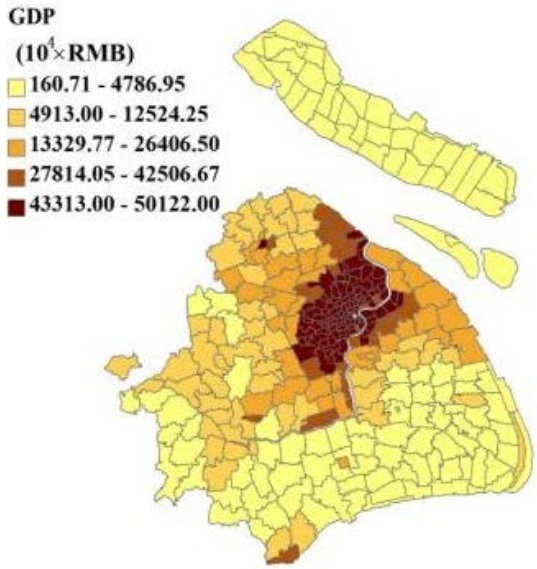

Figure 6-9: GDP (Gross Domestic Product) in Shanghai; Source: Wang, Zhang et al., 2013

The economic activities on Shanghai streets started early. At the morning rush between 7am and 9:30am, at the time of going to work and to school, some of the breakfast, vegetable and fruits shops had their first clients. As the streets were losing some of the commuting chaos, more commercial activity was taking place at other stores as well. Furthermore, from around 11:30am to 1:00pm, the small restaurants were getting filled with customers. Afterwards, the shop keepers were getting more relaxed. Around 4pm, when picking-up the children from school, intense shopping activity started again, which continued until about 7pm, when people, at the end of their work day, had their dinner. After 8:00pm, some people were still shopping, but many of the street segments became quieter. Nevertheless, after 8:00pm (while groups of residents were dancing in squares, in parks or on the pavements) and until around 10pm or 11pm, only small shops and small restaurants were still open.

More detailed analyses of the economic profiles of businesses, of the social classes targeted, as well as informal and illegal activities are presented for each segment in section 6.8.

6.5 Safety (in Living and from Traffic)

6.5.1 Correct use of the street space

6.5.1.1 Indicators: Aggressive road users, The response to traffic rules

On most of the segments, pedestrians crossing the street randomly and cyclists not waiting for the green lights at intersections were those not respecting traffic rules.

Particularities were encountered on the S segments, where cars, bikes and pedestrians shared the street space, under almost no strict traffic rules. Furthermore, on segments that did not allow two ways for bikers (on Shaanxi South Road, M set), as well as where biking was forbidden (on Pudong South Road, XL2 set), bikers were riding on bus lanes, on the pavement, or against the main traffic. On the high traffic segments of Xietu Road (L set) and Shangcheng Road (XL1 set), traffic rules were generally respected by all the participants to traffic. Yet, on Xietu Road a small accident between two bike riders has been witnessed at the intersection with Luban Road, while on Shangcheng Road two car accidents at the intersection with Dongfang Road have been witnessed.

Honking drivers (of cars and buses) and riders (of e-bikes) were on almost all segments. Speeding has also been noticed on some of the main arteries with through traffic. Nevertheless, on many of the segments, wheelchairs or shopping carts have been seen pushed on the street, as seen in Figure 6-10. This indicates that vehicular traffic was not perceived as threatening, but at the same time, it can indicate that the pavements were unsuitable for pushing wheelchairs and carts, being either too narrow, or paved with stones.

Figure 6-10: Pushing wheelchairs on roadways on some of the selected segments

6.5.2 Security eyes on the street

6.5.2.1 Indicators: Presence of security guards and policemen, Security cameras

Security guards have been noticed on all the segments. On the S and M segments, the security guards were often more relaxed, chatting with people, saluting the residents, without much investigation on the people entering the compounds. On the other compounds in the L, XL1, and XL2 sets, random entrance enquiries or more strict identification were required, while car accesses usually had check-points with barriers.

In addition to security guards and policemen, security cameras have been noticed on all the segments to ensure the traffic and the living safety.

6.6 Social Interaction and Public Life

6.6.1 People on the street

6.6.1.1 Indicator: Population density

The general overview of the population density in Shanghai is resulting from the study of Wang, Zhang et al. (2013), presented in Figure 6-11. As it can be observed, the S, M and L segments are located in areas with the highest population density in the city, having between 29802-33400 persons/km^2. The XL1 and XL2 segments are located in areas with slightly lower densities of 3907-29801 persons/km^2. This means that in the S, M, and L areas there are higher possibilities for overcrowding.

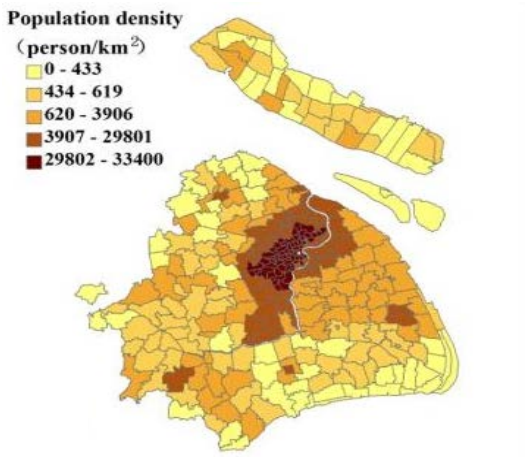

Figure 6-11: Population Density in Shanghai; Source: Wang, Zhang et al., 2013

6.6.1.2 Indicator: Counted pedestrians

The results of pedestrians counting can be seen in Table 6-7.

Table 6-7: Counted pedestrians on selected street segments

		5 min intervals								Average in 5 min	Per min	Per hour
		Autumn		Winter		Spring		Summer				
		Week-day	Week-end	Week-day	Week-end	Week-day	Week-end	Week-day	Week-end			
S	Xicangqiao Street	28	17	15	14	15	15	22	22	18,5	3,7	222
	Wenmiao Road	18	57	13	35	24	29	19	37	29	5,8	348
	Penglai Road	66	52	40	52	74	63	30	28	50,62	10,12	607,5
M	Jiashan Road	51	31	59	48	37	59	76	41	50,25	10,05	603
	Xiangyang Road	49	81	89	68	62	67	60	61	67,12	13,42	805,5
	Shaanxi S Road	48	63	34	49	45	70	24	24	44,62	8,925	535,5
L	Mengzi West Road	42	32	20	13	19	25	10	12	21,62	4,32	259,5
	Liyuan Road	83	52	43	72	81	69	45	22	58,37	11,67	700,5
	Xietu Road	34	63	47	40	70	46	65	43	51,00	10,20	612
XL1	Qixia Road	55	36	47	53	48	59	23	18	42,37	8,47	508,5
	Rushan Road	43	152	75	100	76	147	75	50	89,75	17,95	1077
	Shangcheng Road	20	27	23	38	6	12	24	20	21,25	4,25	255
XL2	Pucheng Road	34	24	30	19	33	20	17	24	25,12	5,02	301,5
	Nanquan Road	36	29	20	76	44	58	30	50	42,87	8,57	514,5
	Pudong South Road	52	55	55	85	41	36	56	38	52,25	10,45	627

In Figure 6-12, the graphical results of the pedestrians counting in 5 minutes' intervals indicate that the lowest numbers of pedestrians passing were recorded on Xicangqiao segment (S set), on Mengzi West Road (L set), on Shangcheng Road (XL1 set) and on Pucheng Road (XL2 set). These segments were with the lowest amount of commercial activities within their predefined sets. The highest average values, of over 800 pedestrians per hour, have been recorded on Xiangyang Road (M set), and on Rushan Road (XL1 set), who had full commercial ground floors and attracted people from the surrounding areas. An average of 600 - 700 pedestrians per hour was recorded on the segments of Penglai Road (S set), Liyuan Road, Xietu Road (L set) and Pudong South Road (XL2 set). On these segments, the reasons for the high influx of people were the good connectivity, and the transit role in the wider network. Additionally, these segments had a good amount of other non-residential

uses, such as offices and commercial spaces. Furthermore, in the case of Xietu Road and Pudong South Road, important bus stops were located on the segment.

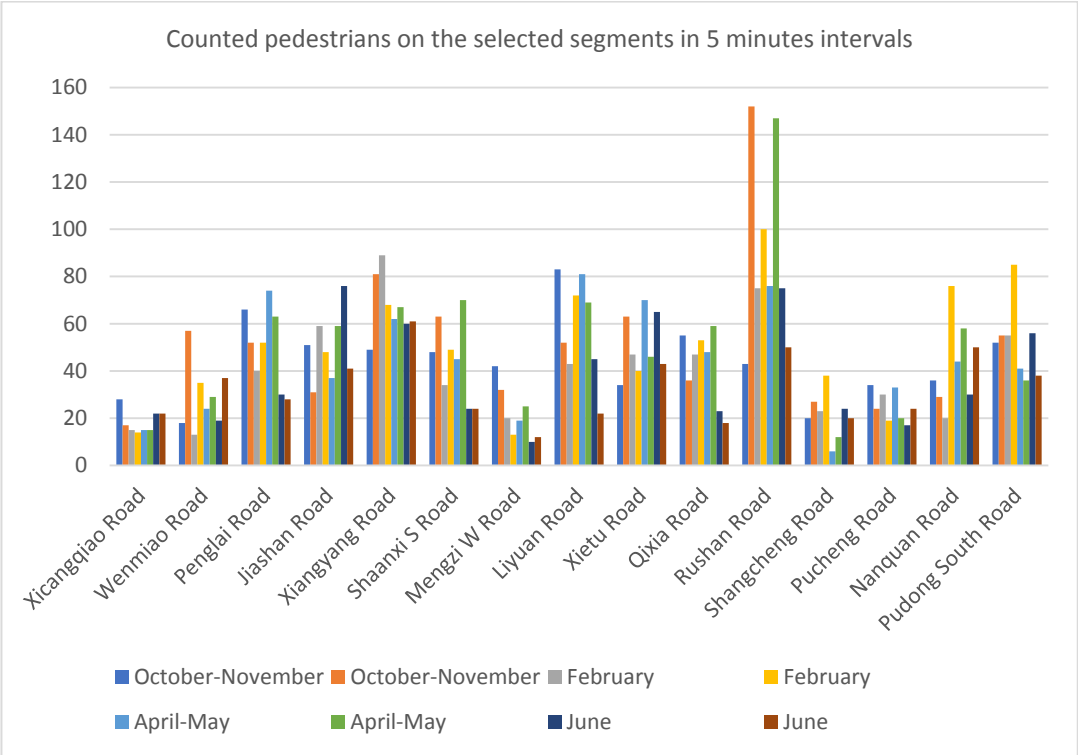

Figure 6-12: Counted pedestrians during 5-minute intervals

On some of the segments, lower numbers of pedestrians have been recorded at summer instances. On other segments with a significant amount of commercial activities (on Wenmiao Road, S set; on Rushan Road, XL1 set) a higher number of pedestrians was recorded at weekends. Furthermore, significant is the maximum recorded of 152 people passing in 5 min on Rushan Road, compared to the parallel Shangcheng Road with a maximum record of 38 people passing in 5 min. This difference resulted mainly based on the difference in the amount of commercial activities on the segment. Furthermore, on Penglai Road, the average of 50 people passing in 5 minutes, represents a significantly high number of pedestrians, especially considering the conditions of the narrow and interrupted pavements.

On all the segments located in proximity to schools, a higher number of pedestrians (pupils, parents, grandparents) was noticed around 7am and 4pm, when the children were starting and ending their school day.

6.6.2 Opportunities for interaction

6.6.2.1 Indicator: Human activities on the street

The recorded activities at 8 different instances of observations in four seasons can be seen in Appendix E3.

Based on the conducted observations during all the four seasons, I noticed how in very cold winter days (below 5-7°C), very few people had activities on the street, as vendors stayed more at the inside of shops, and fewer people were shopping, while shops and workshops had their doors half-closed. However, at the milder winter instances (above 7-10°C) although wearing thick coats and thick pyjamas, the people were still on the street carrying their regular activities, including: shopping, chatting, relaxing in front of their houses, and playing cards at their usual spots.

At summer, it has been observed that people preferred to conduct their activities in shadow: some groups were moving their tables and chairs for playing board games in the shadow; others were doing kitchen works such as peeling vegetables and deshelling seafood under shade. At summer, shops with air conditioning facilities kept their doors closed, while shopkeepers stayed inside. The shops selling veggies and fruits had transparent plastic drapes, keeping a cool atmosphere inside, while still allowing passers-by to see the products. At summer, the high temperatures made people have fewer activities on the street, but still a lot of people were walking from one side to the other on the segments with small-scale shops or on better-connected segments. Furthermore, when waiting at traffic lights, some pedestrians and bikers were lined-up near fences under the shadow of trees, while others carried sun umbrellas.

At spring and autumn, there has been recorded the peak of activities, with both shopkeepers and residents sitting outside for a longer time, sometimes accompanied by children. Additionally, workers that were planting, cutting branches, and sweeping leaves have often been seen during these seasons.

Generally, more activities seemed to take place on the streets at weekend compared to weekdays, during all seasons, especially on the segments with more shopping opportunities. Furthermore, at weekends, the pedestrians walked in a more relaxed manner, having optional activities, often accompanied by children. Still, independent of the day of the week, the vegetables, fruits and snacks shops were

opened from early in the morning until late in the evening. Furthermore, street cleaners were seen on the segments at all times: sometimes sweeping the pavements, sometimes resting, sometimes speaking to other people.

6.6.2.2 Indicator: Outdoor tables and seats

Chairs on the pavements have been seen on all the segments, but less on Shangcheng Road (XL1 set) and on Pudong South Road (XL2 set). The chairs were taken out on streets by: the shopkeepers to rest or to have customers waiting their turn in salons and massage stores; by the ambulant vendors to conduct their business; by the residents to rest and play board games. Several other elements on the street were used as improvised seats, including: parked bikes, planters, borders, low fences.

More formal tables and chairs on the segments were noticed in front of specialized tea shops and in front of restaurants. Other tables were brought out by the vendors to eat in front of their stores or by the residents for playing board games.

6.7 Sense of Place and Belonging

6.7.1 The identity of the streetscape and the community involvement

6.7.1.1 Indicator: Street distinctiveness

On the S segments, the street distinctiveness was given by old houses with original brickwork, by landmark buildings in proximity (the Temple on Wenmiao Road, the Mosque behind Xicangqiao segment), by specific shops (leather shops on Penglai Road, games stores on Wenmiao Road), by good schools in the city (on Penglai Road). Similarly, on the M segments, the identity was given by the *lilong* architecture, by the rows of plane trees (on Shaanxi South Road), or by the small shops (on Xiangyang Road). For these reasons, numerous tourists and photographers were wandering around the S and M streets, to capture the way of living in the old town or in the former concession.

The L, XL1 and XL2 segments were less distinctive. Nevertheless, shopping gave some character to streets (especially on Rushan Road, XL1 set) as did the luxuriant vegetation visible from the street (on Mengzi West Road, L set, Nanquan Road, Pucheng Road, XL2 set).

6.7.1.2 Indicators: Identity through perception senses; Cleanliness and sanitation on the segments

The lowest degrees of cleanliness and sanitation were encountered on the S segments, where, although the exterior housing facades have been repainted through government interventions, the interiors were in very poor conditions. Furthermore, at the near-by refuse containers, garbage was often spilling over, while kitchen waters were often thrown on the street. In this way, although the S streets had the charm of the Old Town, disorder, poverty, lack of cleanliness and of maintenance were encountered.

Similarly, on the segments in the M set, the cleanliness was poor near-by the shops selling sea food, meats, vegetables, and snacks, as well as in front of the small restaurants. Some of the small shops generated visual disorder (with vegetable and fruits peels left around), but, at the same time they also represented lively scenes of pulling, twisting and boiling fresh noodles, peeling vegetables and cooking Chinese snacks. In the end, the disorder got blended on the vibrant background of the multitude of shops and products. Nevertheless, some of the restaurants and food stores with doubtful degrees of sanitation could pose public health issues (on the S, M segments, on Qixia Road, XL1 set).

Overall, in all the selected areas (S, M, L, XL1, XL2), visual disorder was encountered around the older mid-rise buildings; however, on some of the reconstructed arteries, disorder was hidden behind the boulevard image (on Xietu Road, L set; on Pudong South Road, XL2 set). Nevertheless, clothes hanged for drying brought visual richness to the street on old streets (mostly visible on segments with short setbacks in the S, M, L, XL1 sets) – at balconies, in front of massage stores, as well as on lane gates. Furthermore, the small stores also generated visual richness, but, while merchandise and packaging waste were left on pavements, these were sources of disorder on all the selected segments.

Besides, in the L and XL2 sets, the underused pavement space along the gated high-class compounds or in front of the blocked gates to the middle-class compounds became places for informally sorting waste materials and for emptying refuse containers to the refuse truck (seen on Mengzi West Road, L set, Pucheng Road, XL2 set). Overall, however, on the segments in the L, XL1 and XL2 sets there were less issues with the sanitation on the streets. However on some of these segments with less human activities (such as Xietu Road, L set, Shangcheng Road,

XL1 set, Pucheng Road, XL2 set), there was not much disorder, but not much liveliness either.

Nonetheless, the informal areas used as public toilets by men or by children (seen occasionally on the S, M, and L sets) and the areas with uncleaned dog waste were problematic concerning sanitation, although cleaners sweeping the streets and maintaining the green spaces have often been seen on most of the segments (although less on the S segments).

Furthermore, on the higher traffic segments, the noise of the passing vehicles was overtaking the street at green lights intervals, and conducting conversations with other people on the street was difficult (on Xietu Road, L set, Shangcheng Road, XL1 set, Pudong South Road, XL2 set). Otherwise, noise sources on the streets were: honking from bikes, buses or cars; noise from construction and renovation works, especially on the streets bordered by shops or workshops; people speaking out loud on the streets with more human activities, especially near gambling centres (more on the S and M sets); children coming out from the schools on the segments. However, some of the streets with less circulation were generally quiet and calm (Xicangqiao Street, S set; Jiashan Road, M set; Mengzi West Road, L set; Qixia Road, XL1 set). Notwithstanding, at quiet intervals, there could be heard pleasant instrumental notes coming out of cultural centres (on Shaanxi South Road, M set; Nanquan Road, XL2 set).

The smells on the street were sometimes pleasant, coming from various snacks and food stores; other times, the smells were unpleasant, coming from refuse and from canals with dirty waters on streets, especially on the segments bordered by poorer living areas, by small restaurants, markets, vegetables and fruits shops (mostly on the S, M, and XL1 segments).

6.7.1.3 Indicator: Local gatherings

Many residents were often gathering in designated community spaces: at cultural centres and in community rooms to practice music and calligraphy, to play games, to drink tea and to chat. Otherwise, residents but also shopkeepers were forming chatting groups on the lanes, on the street, or inside the compounds. These activities have been seen more often on the old segments, where more people lingered in the surroundings, but which also had limited spaces within residencies.

6.8 Indicators particularizing each selected street

In this subsection, each segment is presented according to particularizing (qualitative) indicators that include: the Historical period of development for the bordering buildings and blocks (below referred to as 'historical period of development'); Uses, facilities and amenities on the segment, Active ground floors, Economic profiles of the businesses, Social classes targeted by businesses, Informal economic activities and ambulant vendors, Illegal economic activities (below referred to as 'uses, amenities, active ground floors, and economic activities'); and Human activities on the street.

Concerning land uses[70], different categories of uses (see the legend in Figure 6-13) have been identified on each segment, differentiating between types of residential uses, education, institutions, offices, commercial, culture, manufacture, entertainment, utilities functions. Other amenities such as public toilets, police stations, banks, and gas station have been indicated with signs.

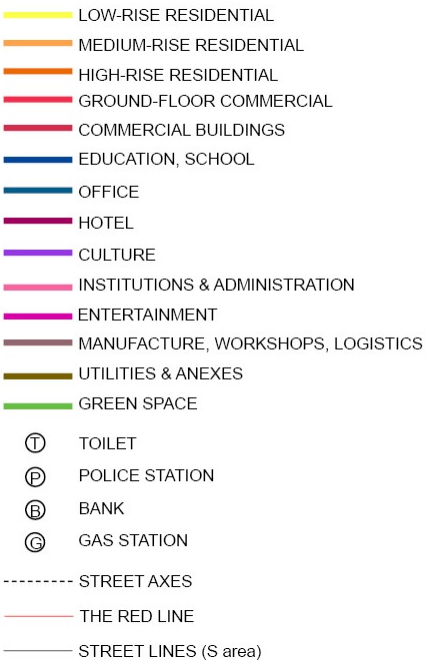

Figure 6-13: Legend of land uses along the selected street segments

[70] In diagrams presenting landuse on each segment, redlines and street axes have been indicated for reference, to reflect the existing situation at the moment of the study, based on the information extracted from Goggle Maps 2017 or deduced from AutoCAD basemaps. For the S area, street lines from Google Maps 2017 are indicated, as they differ much from the newly proposed redlines found in the Shanghai Old Town Historical and Cultural Area Protection Plan (Control, Detailed Planning), with new circulation arteries meant to cut through the old fabric.

6.8.1 S set - Xicangqiao Street

Indicator: Historical period of development

On Xicangqiao Street (S set), shanties dominated. A mid-rise apartment building was located on the north-west corner, as a result of a reconstruction operation in the 1980s. Distinct on the segment was also the Shanghai Muslim Association building, built perhaps around the 1990s. The photo-merged frontages of Xicangqiao Street can be seen in Figure 33, Appendix E1.

Indicators: Uses, amenities, active ground floors, economic activities

Besides the dominant residential use, on Xicangqiao Street (S set), other uses were: culture, small commerce, workshops, and entertainment. These can be seen in plan in Figure 6-14. Amenities were the local shops, the hairstyling salon, the informal community centre. Xicangqiao Street (S set) had 40% active ground floors: small shops selling vegetables, eggs, steamed buns, fish, convenient stores, small workshops, hairstyling salon, gambling centres. Nevertheless, on Xicangqiao Street, the commercial spaces did not form a continuous stripe.

Figure 6-14: Uses along Xicangqiao Street (S set)

The businesses on this segment were addressed to the lower social classes living in the surroundings. Informal activities took place in the form of sewing and shoes repairing services, as well as selling fresh vegetables. Illegal activities took place at the gambling centres and at two licentious massage stores.

Indicator: Human activities on the street

On Xicangqiao Street (S set), the parts of the segment with human activities on an almost continuous basis were in front of the gambling centres, near the improvised porches, near-by vendors, and at the community centre. These spots were uniformly distributed along the entire segment.

Dominant human activities on the Xicangqiao segment were the optional and the social activities, with fewer necessary activities recorded (see Appendix E2, Table 22). The distribution of the activities on the segment at all the observed instances can be seen in Appendix E3, Figure 49.

Beyond the predefined intervals of observation, there have been recorded similar types of activities, such as: people doing their craftsmanship (Figure 6-15, picture ‘g’); residents peeling, washing or drying vegetables (Figure 6-15, picture ‘h’). At lunch time, shopkeepers, but also residents were eating on the street side (Figure 6-15, picture ‘j’). At dinner time, some residents were sitting at the table brought out on the street (Figure 6-15, picture ‘i’). After the school hours, but mostly at weekend, more children were seen on the segment, accompanied by parents or simply playing on their own (Figure 6-15, picture ‘k’ and ‘l’).

Figure 6-15: Human activities on Xicangqiao Street (S set)

6.8.2 S set - Wenmiao Road

Indicator: Historical period of development

On Wenmiao Road (S set), on the eastern half of the segment shanties from the 19th century were predominant. On the western end of the segment, towards Wenmiao Temple, some of the buildings had *lilong* features, of which a well preserved *Shikumen* house gave insights of a richer family that used to live there. The better maintained buildings had shops at the ground floors. On the east corner of the segment, a mid-rise residential building has been inserted around 1970s. The frontages of the Wenmiao Road segment can be seen in Appendix E1, Figure 34.

Indicators: Uses, amenities, active ground floors, economic activities

Besides the residential use in low-rise and mid-rise residential buildings, other uses on Wenmiao Road were: services, commerce and education (Figure 6-16), with active ground floors in proportion of 60% of the frontage. The amenities on Wenmiao Road consisted of convenient stores, small shops and restaurants, and a public toilet. The shops' offer ranged in terms of quality and prices, from the more exclusive shops of Japanese cartoons, Hong-Kong desserts and specialized tea shops, to small and cheap restaurants, as well as tobacco stores for the residents.

Figure 6-16: Uses along Wenmiao Road (S set)

On Wenmiao Road (S set), an evident difference was in the economic profiles of the businesses located on the western half of the segment, compared to businesses on the eastern half of the segment. On the western half, the shops were addressed mainly to visitors and tourists, being in proximity to Wenmiao Temple. On the eastern half of the segment, the few small shops were addressed mainly to the residents, belonging to lower social classes. Informal vending on Wenmiao Road has been noticed when some of the residents opened their own stalls with antique

products at weekends. Illegal activities took place at night at one licentious massage store, located in-between the stores with Japanese cartoons.

Indicator: Human activities on the street

On Wenmiao Road (S set), the western half of the segment was more intensely populated with tourists and visitors especially at weekends, including both foreigners and Chinese people. At weekends, there have also been seen more children on the street, playing in front of shops, drawing and practicing calligraphy. On the eastern part of the segment, people seemed to be busy with more domestic activities. On this segment, people have been seen gathering especially near porches, small restaurants and antique shops, as it can be seen in Figure 6-17. The necessary, the optional and the social activities recorded during the predefined intervals of observation on Wenmiao Road have been listed in Appendix E2, Table 23.

Similar activities took place on Wenmiao Road throughout the day, including: residents washing vegetables or doing laundry in front of their houses; people eating at the small restaurant; shopkeepers sitting in front of stores, even cooking at lunch time; groups of residents and shopkeepers gathering for playing cards or chatting; children drawing on the street side (see Figure 6-17).

Figure 6-17: Human activities on Wenmiao Road (S set)

6.8.3 S set - Penglai Road

Indicator: Historical period of development

On Penglai Road (S set), there were shanties in very poor conditions, indicating a period of construction dating from the 19th century, and '*lilong*' houses, built during the Concession period (see also Chapter 3, sections 3.3.1, 3.3.2) have also been encountered. Through government interventions, some parts occupied by shanties have been demolished and replaced with a mid-rise apartment building in the middle of the segment and a high-rise apartment building at the west end of the segment, as it is visible in Appendix E1, Figure 35.

Indicators: Uses, amenities, active ground floors, economic activities

Besides the low-rise, mid-rise and high-rise housing, other uses on Penglai Road were: commerce, administration, workshops, and education. The amenities on Penglai Road consisted in: convenient stores, local shops, foot massage stores, and beauty salons. Penglai Road had active ground floors on about 65% of the frontage, despite the recently walled leather shops (at the order of the local government). The active ground floors consisted of: vegetables stores, market, foot massage, hairstyling salon, small restaurants, tea shops, real estate offices, printing shops, small cardboard and metal workshops.

Figure 6-18: Uses along Penglai Road (S set)

The businesses on the segment targeted a wide range of customers based on their location in the city centre and through online advertising, as following: remaining whole-sale leather shops targeted other small businesses; the small restaurants on the segment targeted both the locals or white-collar workers; other businesses of very small scale targeted mainly the residents. Informal or illegal

economic activities took place at the shops that have been forcefully closed by the police; nevertheless, the owners kept selling their products when customers came.

Indicator: Human activities on the street

On Penglai Road (S set), a higher number of passers-by compared to residents with static activities was encountered. People were commonly gathering in front of leather shops or at lane entrances. The vegetable shop was also often crowded with shoppers.

Necessary activities were predominant on this segment, but optional activities and social activities have also been recorded (see Appendix E2, Table 24) .

On Penglai Road, differences in the amount of human activities on the segment have been recorded at the moments when children were starting or ending their school day at weekdays (Figure 6-19, picture ‘g’, ‘h’). Nevertheless, kids learning have also been seen at weekends (Figure 6-19, picture ‘j’). Otherwise, the same activities of people shopping and shopkeepers waiting for clients in front of their stores have been noticed throughout the day, at weekdays or weekends (Figure 6-19).

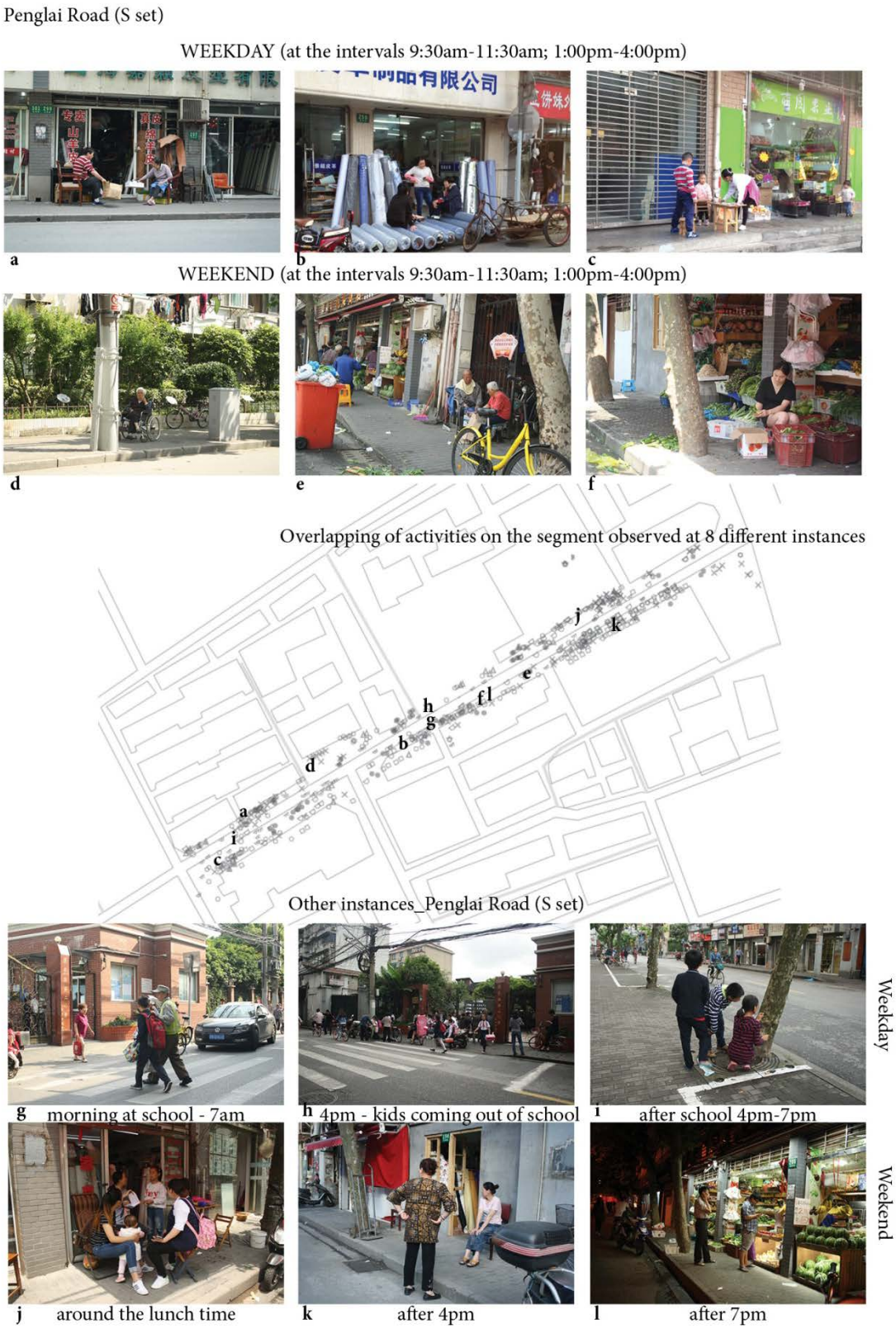

Figure 6-19: Human activities on Penglai Road (S set)

6.8.4 M set - Jiashan Road

Indicator: Historical period of development

On Jiashan Road (M set), low-rise *lilong* houses dating from the time of the French Concession were dominant. Exception made a high-rise apartment building on the south-west corner indicating a period of construction after 1990s. The frontages of Jiashan Road segment can be seen in Appendix E1, Figure 36.

Indicators: Uses, amenities, active ground floors, economic activities

Besides low-rise and high-rise housing, secondary uses on Jiashan Road (M set) were: small commercial, bank and small office, small manufacturing and workshops, and entertainment. These secondary uses can be regarded as amenities and formed active ground floors in proportion of 60-65% of the street frontage. The distribution of uses on the segment can be seen in Figure 6-20. In terms of facilities, the access to private toilets and kitchens has been improved through recent renovations initiated by the government.

Furthermore, the shops supplied products at varying prices and quality: from higher-class restaurants, bars and banking services to small shops selling eggs, fish, veggies, to informal shoes and bike-repairing stalls, to informal vendors of live chickens catering to the low and middle classes living on the segment and in the surrounding areas. Illegal activities took place at the gambling centre.

Figure 6-20: Uses along Jiashan Road (M set)

Indicator: Human activities on the street

On Jiashan Road (M set), more activities have been recorded on the middle parts of the segment, near the affordable shops. During all the four seasons, people have been seen playing board games, sitting in front of shops or at the lane gates, chatting with each other. Nevertheless, the general atmosphere on the segment was peaceful and of comfort. Detailed records of human activities on this segment can be seen in Appendix E2, Table 25.

On Jiashan Road, a bar on the south-east corner was getting opened after 4pm (Figure 6-21, picture 'l'). Otherwise, the same types of activities took place throughout the day: people shopping, shopkeepers resting and waiting for clients, vendors repairing shoes and bicycles, and men playing board games (see Figure 6-21).

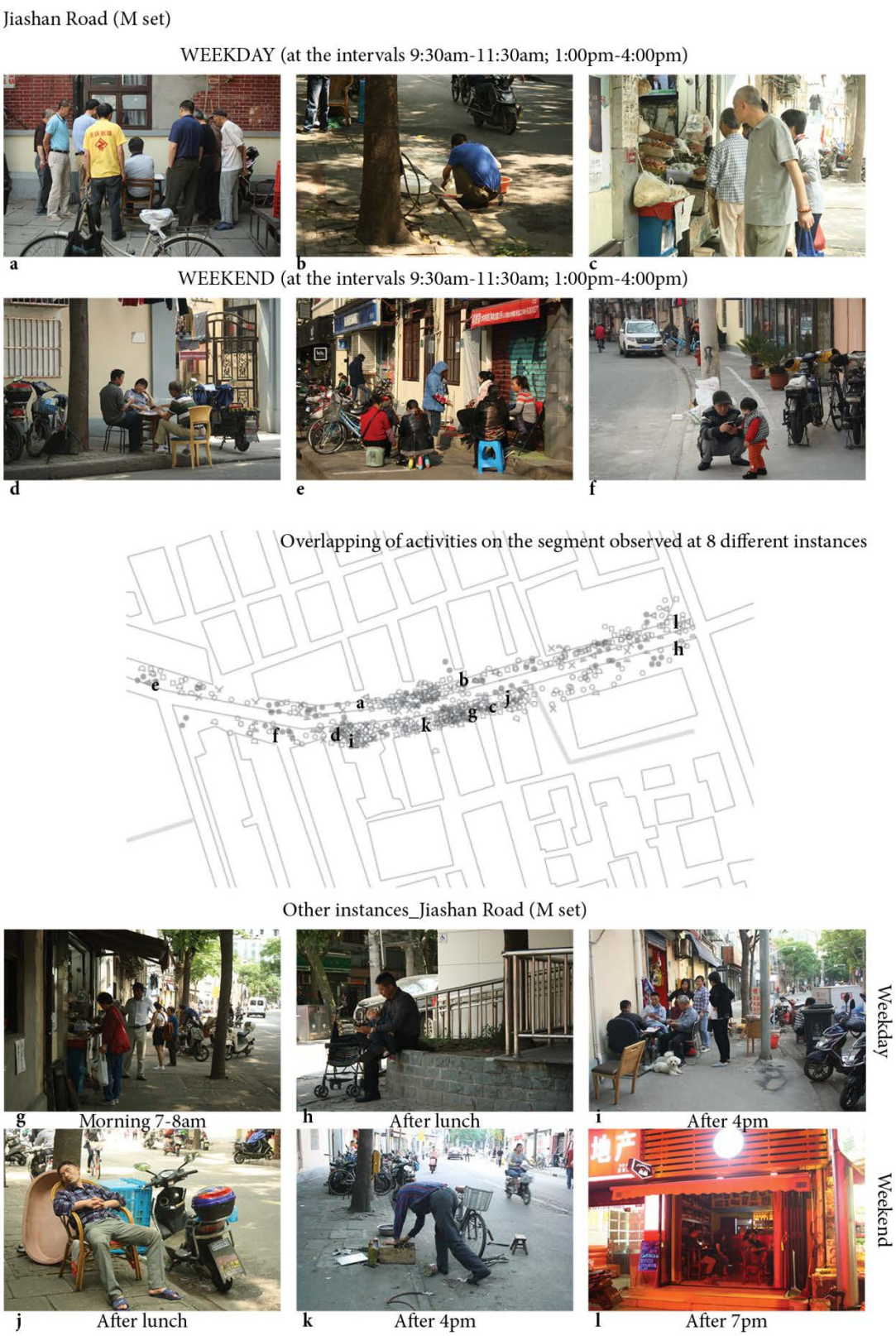

Figure 6-21: Human activities on Jiashan Road (M set)

6.8.5 M set - Xiangyang Road

Indicator: Historical period of development

Low-rise *lilong* houses built during the time of the French Concession were encountered on the west side of the Xiangyang segment, and while socialist mid-rises built in the early 1970s were encountered on the east side. The frontages of the Xiangyang segment can be seen in Appendix E1, Figure 37.

Indicators: Uses, amenities, active ground floors, economic activities

Besides low and mid-rise housing, secondary uses on Xiangyang Road were: small commercial (shops with various products, from fruits, vegetables, small restaurants, to linen, bathroom appliances and others), and small offices. These formed active ground floors on 95% of the frontage, and many of them can be considered amenities, including shops with various foods and products, a pharmacy, and a public toilet. The secondary uses aligned on Xiangyang Road can be seen in Figure 6-22

Figure 6-22: Uses along Xiangyang Road (M set)

Most of the shops on Xiangyang Road (M set) targeted customers living in the surrounding areas, belonging mainly to the middle and lower social classes. On the north corners of the Xiangyang and Jiashan segments, businesses catered for the upper-middle classes, including foreigners. This happened due to the influence of the intersecting Yongkang Road, popular for its bars and cafés on the street.

Indicator: Human activities on the street

On Xiangyang Road (M set), the human activities were evenly distributed on the entire length of the segment (Figure 6-12). The same types of activities have been recorded throughout the day (detailed activities can be seen in Appendix E2, Table 26), including: people shopping; shop assistants waiting for clients in front of their stores; delivery guys doing their jobs; and men playing cards on pavements. Besides, people were seen eating at the small restaurants during breakfast, lunch and dinner times.

Figure 6-23: Human activities on Xiangyang Road (M set)

6.8.6 M set - Shaanxi South Road

Indicator: Historical period of development

On Shaanxi South Road (M set), *lilong* houses, dating from the French Concession time were encountered, while one compound still had its French name carved on its stone gates (Cité Bourgogne). Other buildings on the segment were: few villas on the north-west end of the segment built with French influences, a mid-rise residential building inserted around the 1970s; two other modern buildings consisting of a Cultural Centre and another institution built with neo-classical elements. The frontages of this segment can be seen in Appendix E1, in Figure 38.

Indicators: Uses, amenities, active ground floors, economic activities

Besides the dominant residential land use, on Shaanxi South Road other uses included: culture and institutions, commerce, and education (Figure 6-24). Active ground floors were in proportion of 50% on Shaanxi South Road, consisting of: small shops selling fruits, vegetables, flowers, clothes, paintings, home accessories, shoes accessories, tobacco, small electronics, small restaurants, convenient stores, beauty salons, pharmacy and others. Many of these shops represented amenities, besides the cultural centre located on this segment.

Furthermore, the small shops and the small restaurants targeted lower and middle classes living in the surroundings, while few other stores aimed to attract visitors, by selling paintings, teas and clothes. Informal vendors on the segment were selling sea-food and fritters.

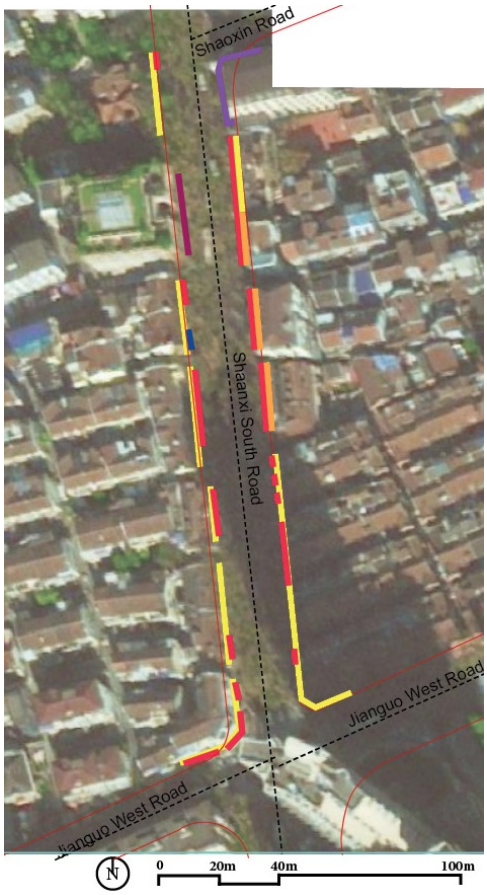

Figure 6-24: Uses along Shaanxi South Road (M set)

Indicator: Human activities on the street

The places that were constantly surrounded by activities on Shaanxi South Road were the vegetable shop and the entrance lane to the former Jiashan market. The street was not crowded with people in any of the seasons, although during autumn and spring, more people were seen shopping and chatting outside. The recorded human activities during the predefined times of observation can be seen in Appendix E2, Table 27.

At lunch time, on Shaanxi South Road, many people were eating at the small restaurants. Otherwise, the types of activities conducted throughout the day were constant: neighbours with kids gathering in front of the bike repairing store; people watching the street or relaxing near the entrance to the Jiashan market; shopkeepers waiting for clients; real estate employees smoking while resting on bikes (Figure 6-25).

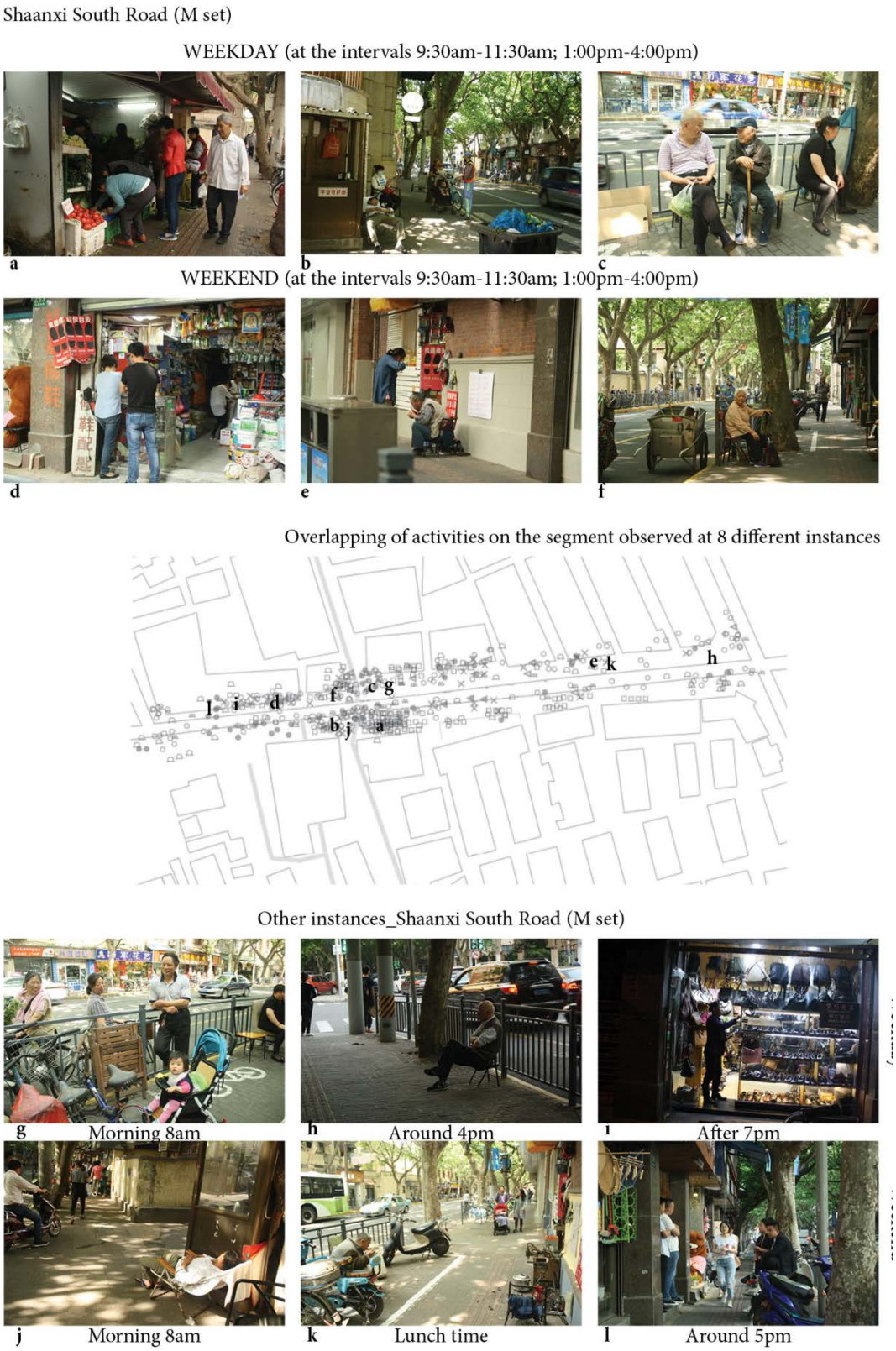

Figure 6-25: Human activities on Shaanxi South Road (M set)

6.8.7 L set - Mengzi West Road

Indicator: Historical period of development

On Mengzi West Road (L set), significant morphological differences were noticed between the north side of the street compared to the south side. The south side was bordered by mid-rise apartment buildings, rebuilt around the 1980s for the low and middle-income social classes. The north side was bordered by high-rise apartment buildings for the higher-income classes, built around the 1980s-1990s. In Appendix E1, Figure 39, the photo-merged frontages of the Mengzi West Road segment can be seen.

Indicators: Uses, amenities, active ground floors, economic activities

Besides mid-rise and high-rise housing, other uses on this segment were: small commerce, including health and beauty; workshops and logistic; administration; entertainment (Figure 6-26). Amenities on the segment were the market, small shops, and massage salons. On Mengzi West Road, about 35-40% of the ground floor space was active. This space was unequally distributed on the two sides of the segment, the north side being closed to the public, with no active frontages. In this manner, the economic activities took place only on the southern side of the segment, addressed mainly to the lower and middle-income classes living on the segment. The market, the massage stores, the tobacco shop, the bike stores and the printing shop, had customers from the surrounding areas as well. Informal activities on the segment consisted in polishing shoes and sharpening scissors and knives. Illegal activities have been identified at one licentious massage store functioning at night.

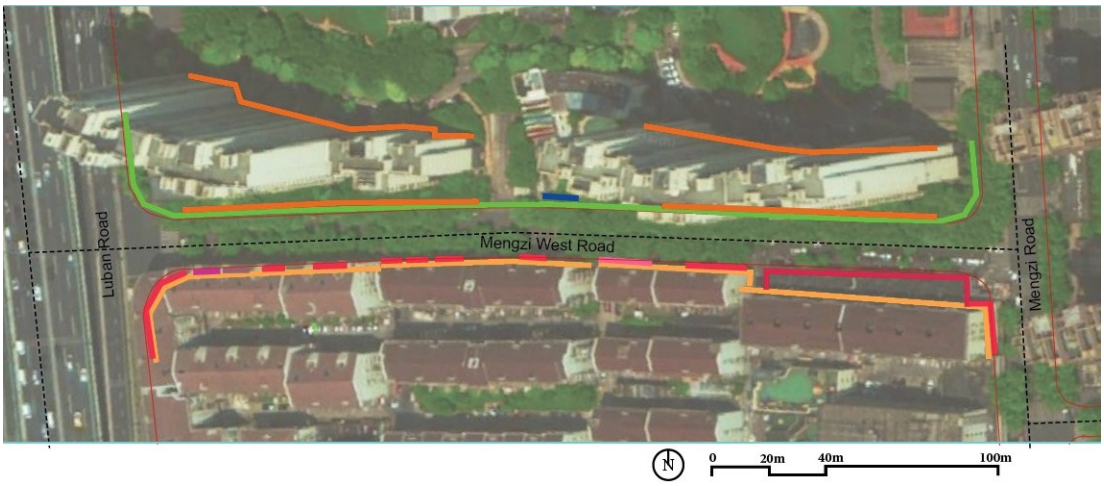

Figure 6-26: Uses along Mengzi West Road (L set)

Indicator: Human activities on the street

On the south side of the street, the most active places were the market, the lanes entrances, as well as the tobacco and bike-repairing stores. On the north side, human activities were rarely seen, except the hot summer days when people were searching for thick shadows. However, a significant drawback on the south side, inhabited by the lower social classes was that children have been seen playing in front of the licentious massage store, although this was closed at daytime (Figure 6-27, picture ‘d’).

Overall, significant differences in the daily rhythm of activities on the street have not been noticed, people carrying the same type of activities throughout the day (Figure 6-27), including: people shopping at the market (although mornings were busier), repairing bikes, resting from time to time in front of small stores or on the available bench on the segment, shopkeepers eating.

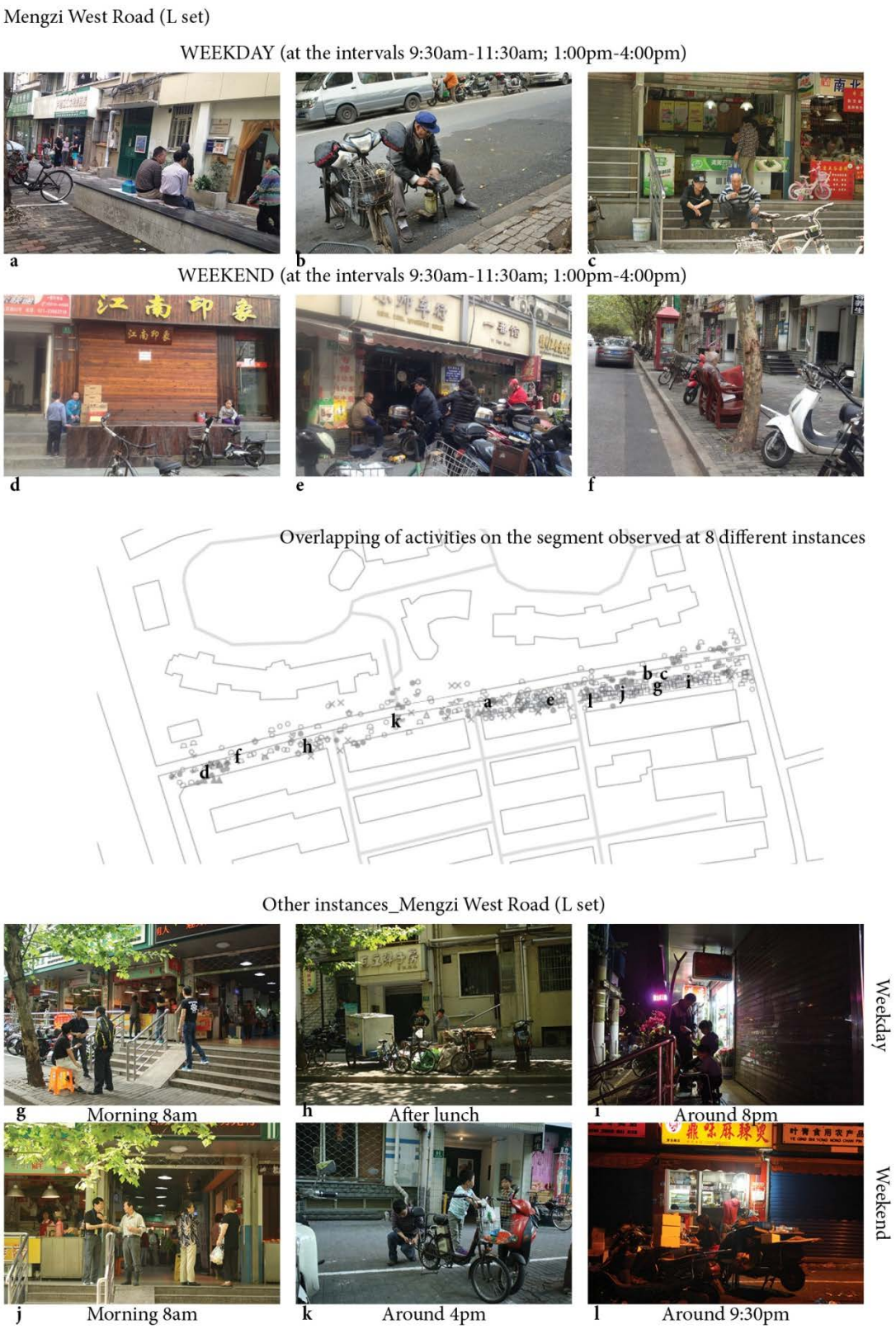

Figure 6-27: Human activities on Mengzi West Road (L set)

6.8.8 L set - Liyuan Road

Indicator: Historical period of development

Mid-rise apartment buildings built around the 1980s (same compound bordering Mengzi West Road to the south, see Figure 6-1) bordered the north side of Liyuan Road. The south side was bordered by high-rise apartment buildings built in the 1980s, 1990s, or after 2000, visible in Appendix E1, in Figure 40.

Indicators: Uses, amenities, active ground floors, economic activities

Besides housing, secondary uses on the segment were: small commerce including health and beauty, small offices, and a cultural centre (Figure 6-28). Furthermore, about 65% of the ground floor space was active on the Liyuan segment, consisting of: small shops selling clothes, fruits, vegetables, snacks, tobacco and others, real estate offices, beauty salons. The small shops and the cultural centre were amenities on the segment.

Most of the businesses on the segment targeted middle-income classes. However, despite a relatively high number of shops on the segment (situated mainly on the north side of the street, see Figure 6-28), there was not a very intense commercial activity. Nevertheless, informal vendors have been seen selling pyjamas, watermelons, and noodles.

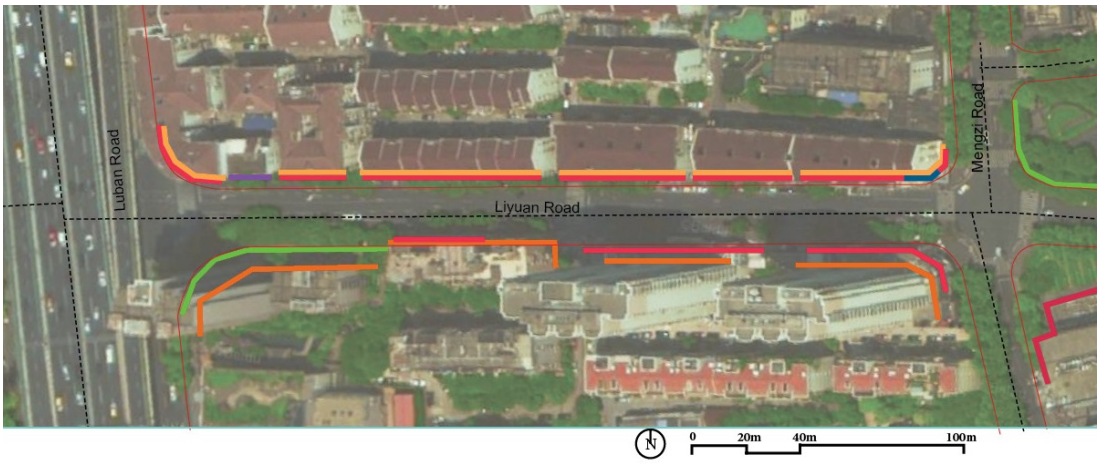

Figure 6-28: Uses along Liyuan Road (L set)

Indicator: Human activities on the street

On Liyuan Road (L set), the places with the highest amount of human activities were the shops with vegetables and fruits. Less activities have been recorded on the south-west corner, where high-rises were set-back from the street, behind a tall fence. On this corner, mainly necessary activities involving security guards or people waiting for taxis were encountered. Detailed activities on the rest of the segment are presented in Appendix E2, Table 29.

Similar types of activities have been recorded throughout the day, including: people shopping steamed buns and other products, shopkeepers and informal vendors waiting for clients, and children playing at musical toys (Figure 6-29).

Figure 6-29: Human activities on Liyuan Road (L set)

6.8.9 L set - Xietu Road

Indicator: Historical period of development

On Xietu Road (L set), most of the buildings have been built after 1990s, of whom some were modern, high-class apartment buildings. Standing out were also two other buildings with public functions, a hotel built with neoclassical elements, and an office building with full-glass façades. Only two mid-rise apartment buildings, in poor conditions, remained from the early 1970s on the south-west corner of the segment. Photo-merged frontages of Xietu Road segment can be seen in Appendix E1, Figure 41.

Indicators: Uses, amenities, active ground floors, economic activities

On Xietu Road (L set), a higher mix of uses was encountered, although housing occupied more than 60% of the blocks bordering the street, as visible in Figure 6-30. The other uses included: a hotel, banks branches, offices, commercial spaces including health and beauty salons, and manufacturing workshops.

The active ground floors on Xietu Road (L set) were in proportion of 55%-60% of the street frontage, consisting of: small shops along the older mid-rise buildings, addressed to the lower and middle-income classes; bank branches and more specialized stores (with tobacco and liquor, hairstyle and beauty, mobile services) at the ground floors of the high-rise buildings, catering for the middle and upper-middle classes. Additionally, informal vendors on this segment have been seen selling flowers or seasonal fruits near the newspaper kiosk. The stores constituted amenities on the segment, besides the gas station and car wash.

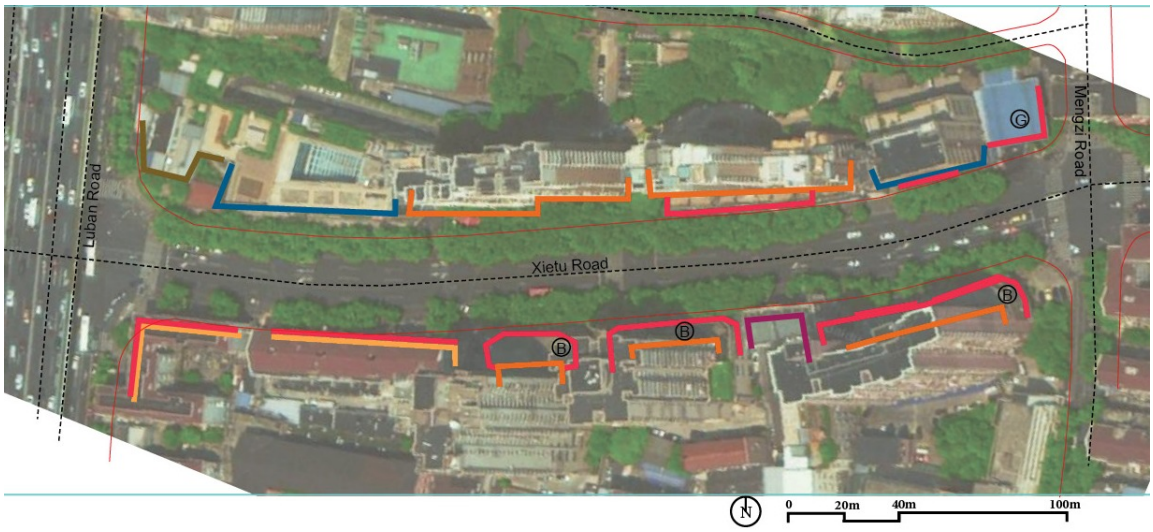

Figure 6-30: Uses along Xietu Road (L set)

Indicator: Human activities on the street

On Xietu Road (L set), places with the highest amounts of human activities and interaction were: in front of the older mid-rise buildings, near the car wash, in front of the Magnolia Hotel, near the bus stop and at the newspaper kiosk. The Amway office building was another 'people attractor' on the segment. Nevertheless, only a few social activities have been recorded on this segment (see Appendix E2, Table 30).

On Xietu Road, similar types of activities have been noticed throughout the day (Figure 6-31): shopkeepers arranging merchandise and having other daily activities in front of their shops, drivers waiting at the car wash; and people waiting in front of the Amway building. Nevertheless, a place with fluctuations in the amount of activities recorded was in front of the Magnolia Hotel where large touristic groups were sometimes gathering, while other times only the security guard was seen.

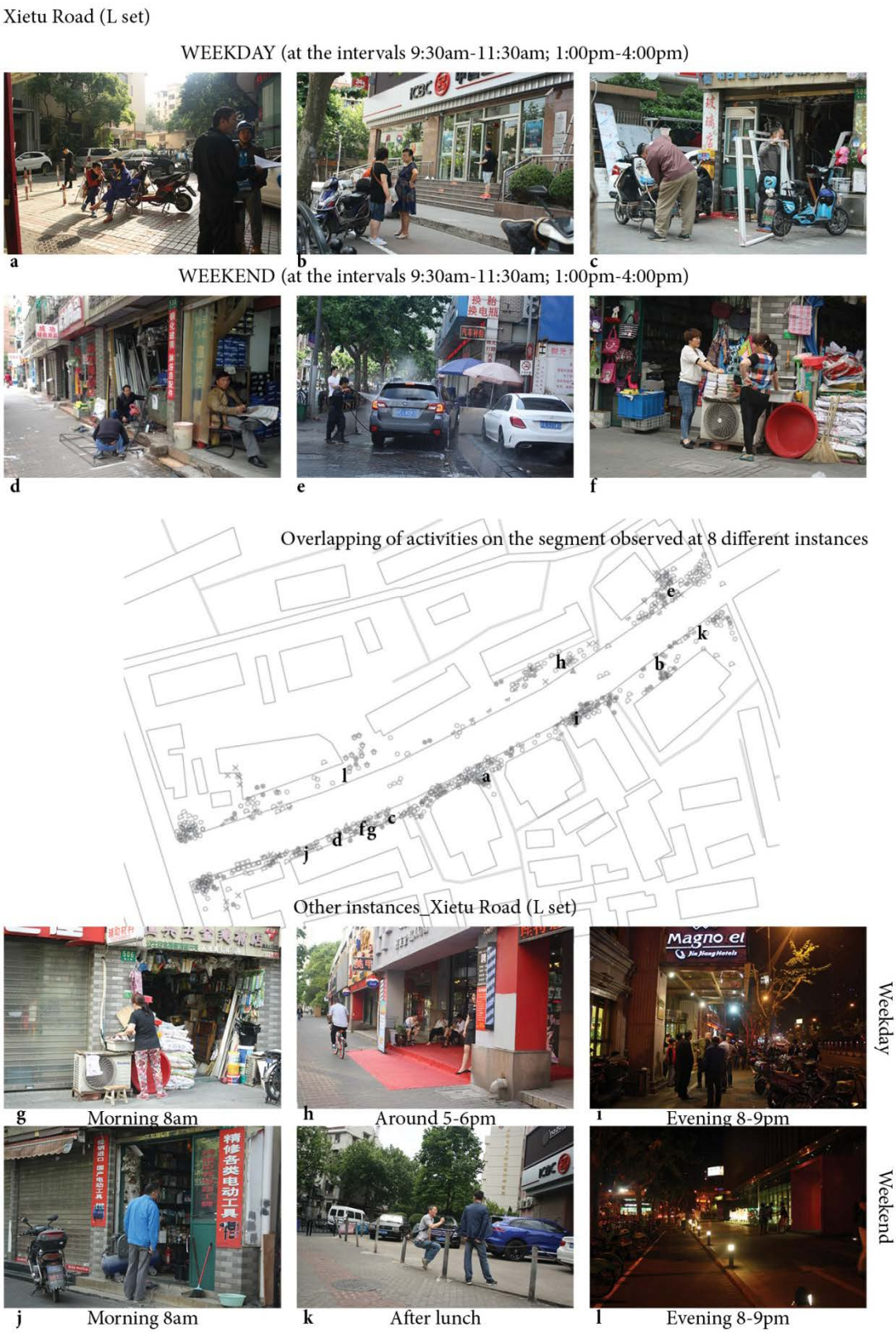

Figure 6-31: Human activities on Xietu Road (L set)

6.8.10 L set - Qixia Road

Indicator: Historical period of development

The XL1 segments were almost uniformly bordered by mid-rise apartment buildings from the socialist period, built around the 1970s. Qixia Road additionally had a hotel in the middle of the segment, dating from the same period as the residential buildings and of similar heights, which stood out from the monotonous frontages mainly through the entrance ornamentation. The photo-merged frontages of Qixia Road can be seen in Appendix E1, Figure 42.

Indicators: Uses, amenities, active ground floors, economic activities

Besides residential land uses, other uses on Qixia Road were: hotel, small commerce including health and beauty salons, and small offices (Figure 6-32). On Qixia Road (XL1), the proportion of active ground floors was of 65%, including small shops, small restaurants and convenient stores. These constituted also amenities on the segment, besides another public toilet.

The economic activities on Qixia Road were addressed to the lower and middle income classes of residents although the restaurants attracted also the blue and white-collar workers from the near-by areas. Several small shops on the segment have been forced to close due to recent controls of business licences. Informal activities of selling vegetables and live ducks have been seen only at one instance of observation, as afterwards the police were more often seen on the segment and informal activities ceased. However, shoe-repairing activities continued, but they took place at regularly, installed stalls at the entrance gates.

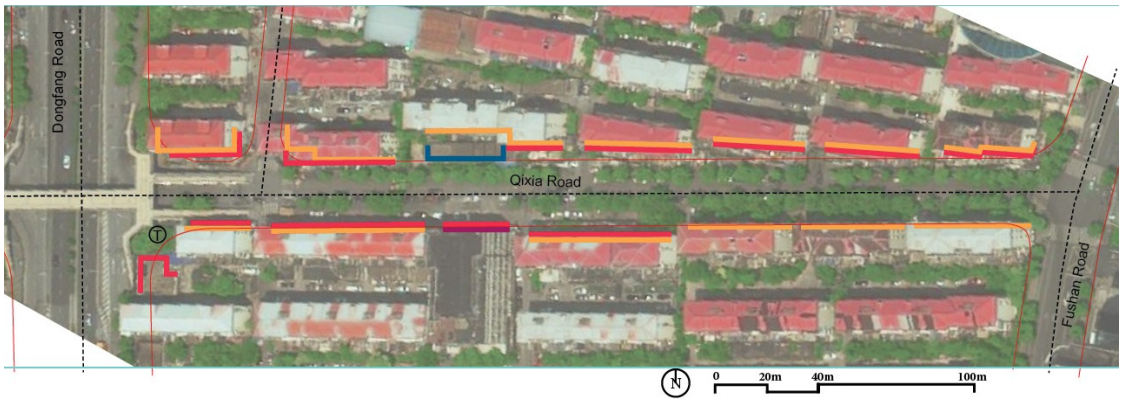

Figure 6-32: Uses along Qixia Road (XL1 set)

Indicator: Human activities on the street

On Qixia Road (XL1 set), less activities on the south-east portion of the segment have been recorded, where buildings were set back from the street, with no commercial ground floors. The activities taking place on the rest of the segment have been listed in Appendix E2, Table 31.

Furthermore, due to white-collar workers coming to eat on this segment, more people were seen on this segment during the week, around the lunch time. At weekends, the street appeared more relaxed and quieter.

Nevertheless, the main activities on the segment included: vendors resting in front of shops, waiting for clients; people chatting, and eating at the small restaurants or shopping for vegetables and snacks (Figure 6-33).

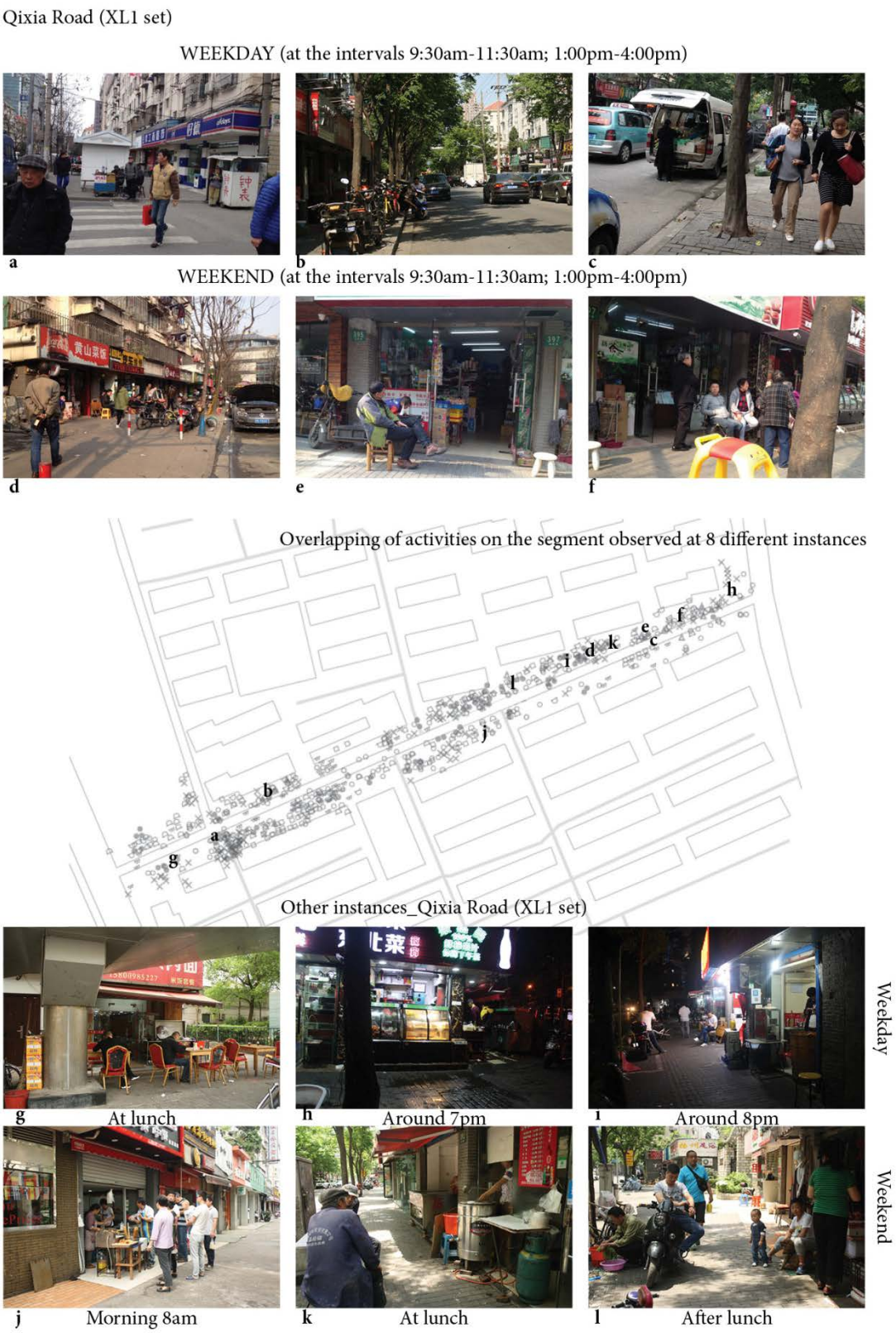

Figure 6-33: Human activities on Qixia Road (XL1 set)

6.8.11 XL1 set - Rushan Road

Indicator: Historical period of development

Similar to Qixia Road (XL1 set), Rushan Road (XL1 set) was bordered by uniform mid-rise apartment buildings built in the socialist period, except for a hotel in the middle of the segment that stood out through its pink shades. The photo-merged frontages of Rushan Road can be seen in Appendix E1, Figure 43.

Indicators: Uses, amenities, active ground floors, economic activities

Besides dominant mid-rise housing, other uses on Rushan Road included: hotel, small commerce, small offices (Figure 6-34). 80% of the ground floors were active on this segment, occupied by a diversity of small shops with foods, snacks and other services and products. This diversity of shops on the segment also represented amenities, besides another small green square on the north-east corner.

The multitude of economic activities on this segment was addressed mainly to the middle and lower social classes. The businesses attracted not only residents, but also shoppers from the surrounding areas. Informal vendors were seen selling roasted sesame, traditional Chinese decorations, small electronics, but they were rapidly sent away by the police.

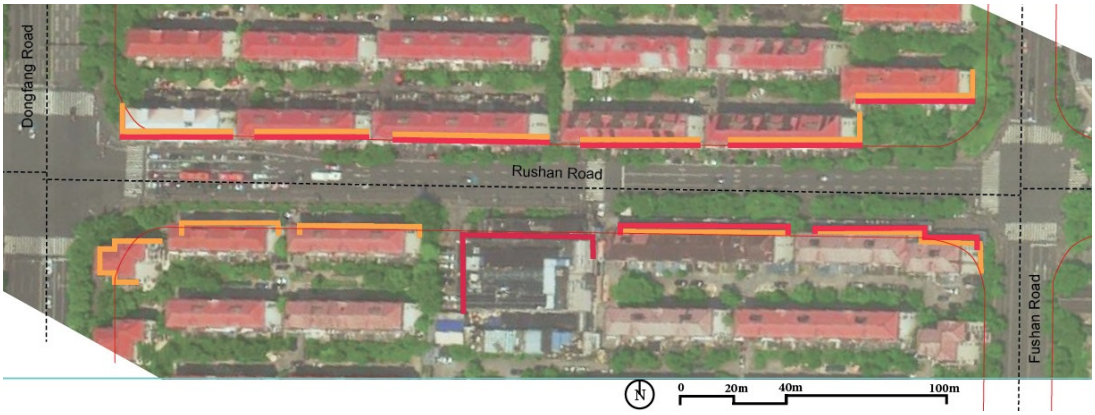

Figure 6-34: Uses along Rushan Road (XL1 set)

Indicator: Human activities on the street

On the segment of Rushan Road (XL1 set), there has been recorded the highest amount of human activities. From the entire segment, the few portions with less activities recorded were: the south-west corner where the buildings were set back from the street and had no commercial frontages; the north-east corner, where

buildings with commercial ground floors were behind a green square that was rarely populated. The highest amounts of human activities on the segment were near the shops with vegetables, foods and snacks. Overall, there can be considered an uniform distribution of activities along the commercial frontage on this segment (Figure 6-35).

Besides the observed instances of socializing on pavements described in Appendix E2, Table 32, many residents have also been observed chatting just beyond the lane entrance gates. On Rushan Road, the same diversity of activities was noticed throughout the day (Figure 6-35), of which the most common were: people shopping, shopkeepers arranging their merchandise, hairdressers resting in front of their salons, and real estate workers resting on bikes and smoking.

Figure 6-35: Human activities on Rushan Road (XL1 set)

6.8.12 XL1 set - Shangcheng Road

Indicator: Historical period of development

Besides mid-rise, socialist apartment buildings, a high-rise apartment building built after 1980s and an educational centre were encountered on Shangcheng Road (Figure 6-36). The frontages of Shangcheng Road can be seen in Appendix E1, Figure 44.

Indicator: Uses, amenities, active ground floors, economic activities

On Shangcheng Road (XL1 set), besides housing, other uses, including education, small commercial, and small offices were in relatively low proportion (Figure 6-36). On this segment, only 15% of the ground floor space was active, consisting of: a few small offices with real estate services, two shops with clothes-ironing services, a small convenient store, a small restaurant, a fruit shop. The restaurant and the small shops constituted amenities. The few economic activities that took place on this segment were addressed to the residents living in this area, of middle income classes. Informal vending or illegal economic activities have not been noticed.

Figure 6-36: Uses along Shangcheng Road (XL1 set)

Indicator: Human activities on the street

On Shangcheng Road, very few human activities were recorded, consisting mainly in necessary activities and few optional activities (see Appendix E2, Table 33). The lack of activities on this street was noticed throughout the day, both at weekdays and weekends. Only from time to time someone was resting on the border, was buying fruits, or was smoking outside. At an evening instance, it was a surprise

to see a group of men eating outside the seafood restaurant, chatting loudly (Figure 6-37, picture ‘l’).

Figure 6-37: Human activities on Shangcheng Road (XL1 set)

6.8.13 XL2 set - Pucheng Road

Indicator: Historical period of development

On Pucheng Road (XL2 set), the character and the morphology of the two sides of the street differed much. On the east side, high-rise apartment buildings have been reconstructed after 1990s, accommodating middle classes. On the western side, Shimao Riviera Garden, a high-end residential compound built in 2005, was built for the highest social class in Shanghai. The photo-merged frontages of Pucheng Road can be seen in Appendix E1, Figure 45.

Indicators: Uses, amenities, active ground floors, economic activities

The west side of the segment was mono-functional, being entirely occupied by the high-end residential compound. On the east side, other uses were: small real estate offices, small commerce and services, including beauty salons, two restaurants, a car wash, and an educational institute. These secondary uses can be regarded as amenities on the segment, besides other ambulant bike repairing stalls and a public toilet. Furthermore, the secondary uses formed active ground floors on 20% of the street frontage.

On Pucheng Road (XL2 set), the businesses were addressed to the middle and upper-middle income classes of residents. Businesses targeting high-income classes were placed on the intersecting Weifang Road, in the form of sport bars, coffee shops, and imported grocery stores. Informal activities on Pucheng Road were the bike-repairing activities.

Figure 6-38: Uses along Pucheng Road (XL2 set)

Indicator: Human activities on the street

Few human activities have been recorded on this segment, and differences between the two sides of the street were obvious. The parts that attracted more people were: the bike-repairing stalls, the bank, the educational centre, the seafood restaurant, and the tobacco store. Staff could also be seen near the car wash and the real estate offices. Other more exclusive stores rarely had any people inside or around them. On the western side of the street, bordering Shimao Riviera Garden, mainly necessary activities have been recorded (see Appendix E2, Table 34).

More social activities were visible in the courtyard of the seafood restaurant, but mainly after 5pm (Figure 6-39, picture 'i'), or at lunch time. Otherwise, the same type of activities took place throughout the day (Figure 6-39), while many activities on the street were of short lengths of time.

Figure 6-39: Human activities on Pucheng Road (XL2 set)

6.8.14 XL2 set - Nanquan Road

Indicator: Historical period of development

Nanquan Road (XL2 set) was uniformly occupied by mid-rise apartment buildings dating from the 1970s-1980s, except two high-rise apartment buildings built a decade later on the south-west corner. On wider pavement portions at the ends of the segment new planters with seating were inserted, but were rarely used by the people on the street. To make space for these new planters, a significant portion with trees on the north-east corner has been cleared out. The street frontages at the time of the study can be seen in Appendix E1, Figure 46.

Indicator: Uses, amenities, active ground floors, economic activities

Besides housing, other uses on Nanquan Road were: small commercial, culture, education, workshops, as seen in Figure 6-40, which constituted amenities. The segment of Nanquan Road (XL2 set) had active ground floors in proportion of 35%. The economic activities on Nanquan Road were placed closer to intersections, at the ends of the segments, and were catering for the middle classes of residents. Informal vendors on the street have been noticed selling seasonal fruits. Additionally, some of the apartments located at ground floors were turned into small workshops selling steel and other construction materials.

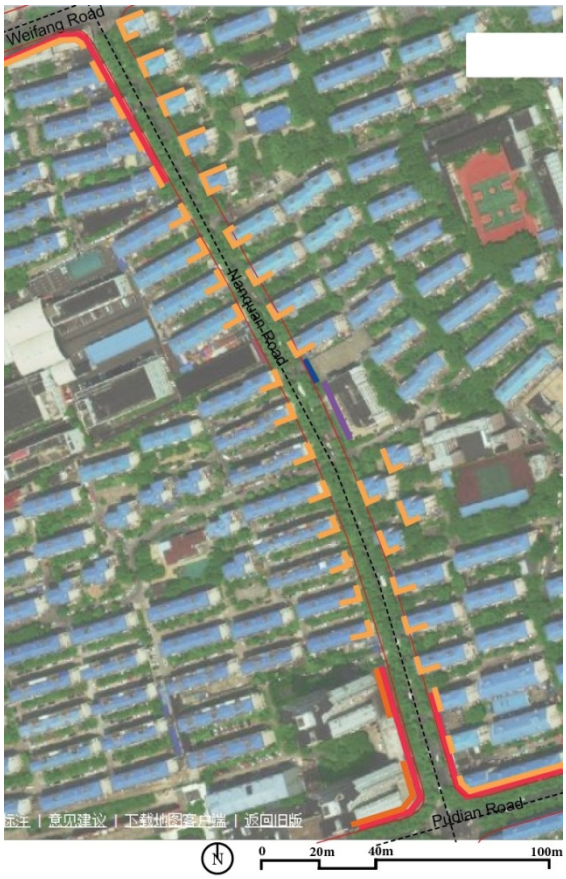

Figure 6-40: Uses along Nanquan Road (XL2 set)

Indicator: Human activities on the street

On this street segment there have been recorded continuous human activities towards the ends of the segment. Very few activities have been recorded in the middle of the segment, except near few lane entrances where people gathered to chat, where informal vendors collected and repaired house appliances (see more in Appendix E2, Table 35).

Throughout the day, there have been recorded similar activities: shopkeepers arranging merchandise, hairstylists and real estate employees sitting outside, smoking, and waiting for clients, groups of men repairing bikes, appliances, and playing board games (Figure 6-41). At evenings, containers filled with seafood were taken out in front of restaurants, which attracted groups of people for outdoors seafood meals (Figure 6-41, picture ‘i’, ‘l’).

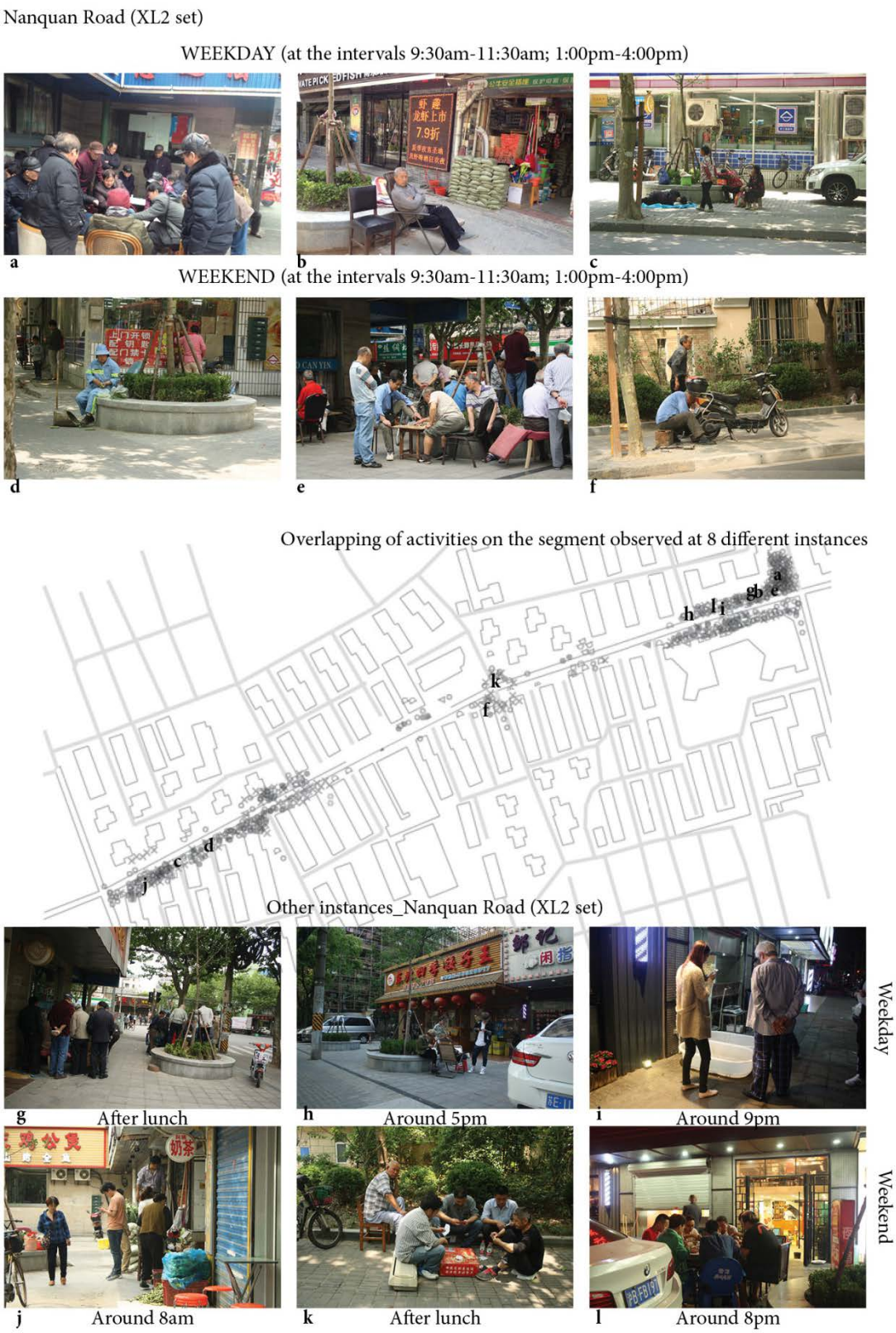

Figure 6-41: Human activities on Nanquan Road (XL2 set)

6.8.15 XL2 set - Pudong South Road

Indicator: Historical period of development

On Pudong South Road (XL2 set) a mix of buildings from different periods of construction was encountered: remaining mid-rise apartment buildings from the early socialist period; high-rise apartment buildings and manufacturing offices built around the 1980s; and modern hotels and office buildings built after 1990s. The frontages of Pudong South Road can be seen in Appendix E1, Figure 47.

Indicator: Uses, amenities, active ground floors, economic activities

On this segment, predominant was still the residential use. The active ground floors were in proportion of 30-35%, consisting of few small shops organized at the intersections and around the bus stops, as well as bank branches, hairstyle salons and logistic services. Most of these consisted amenities, besides the educational centre for senior people from the middle of the segment.

The businesses on the segment were addressed to middle and upper-middle classes. At one instance, an informal vendor has been seen selling peanuts, while someone else has been seen begging in front of an older compound. A higher number of informal vendors and of small shops addressed to lower income classes was found inside the older residential compounds, along main alleys.

Figure 6-42: Uses along Pudong South Road (XL2 set)

Indicator: Human activities on the street

On the segment of Pudong South Road (XL2 set), many people were waiting on bus stops, while staff was present constantly in front of the delivery centre. Otherwise, pedestrians were stopping on the segment only for occasional activities, such as shopping for food, however the segment felt rather empty. The social activities recorded on this segment were very few (see Appendix E2, Table 36). Similar types of activities took place throughout the day (Figure 6-43). Additionally, around lunch and dinner time, few people were eating at the restaurants on the segment, while the pet-shop assistants were seen taking dogs out on the near-by planters.

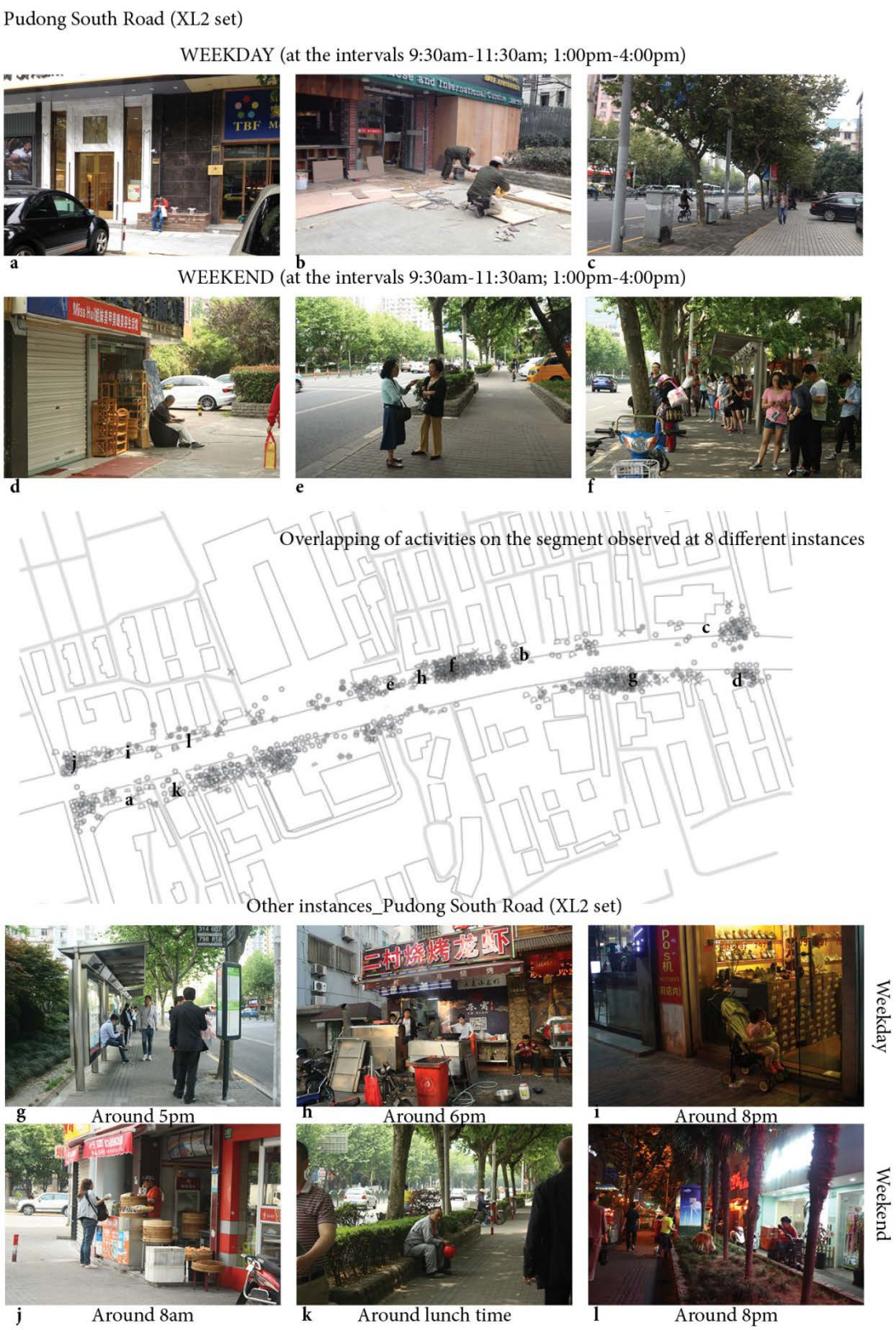

Figure 6-43: Human activities on Pudong South Road (XL2 set)

6.9 Conclusion to Chapter 6

Several characteristics emerged under each of the six liveability qualities assessed on streets, as presented below.

6.9.1 Local Humanized Environment

Most of the selected streets were well served by public transport, however a need for better transport connections resulted on the XL2 segments which were distanced from metro stations. A lower access to public transport has been encountered especially on Pucheng Road (XL2 set), because of its lower spatial accessibility in the wider network.

No conflicts of data resulted between the recorded traffic volumes on the site and the spatial accessibility analysis with the Space Syntax tool (Liu, 2013; Hillier, 2014), but the on-site traffic counts proved the lack of coordination between the street design and the volumes of traffic. For instance, the recorded traffic volumes reported to the roadway widths showed that while on some segments there was reason for congestion, on others, the roadways have been planned oversized. For example, three segments with high traffic volumes of 1800-2000PCE/h at the morning rush hour have been identified in three different sets of streets (Shaanxi South Road, M set, Xietu Road, L set, and Shangcheng Road, XL1 set). The roadway widths differed much between the three segments, growing from Shaanxi South Road in the M set, to Shangcheng Road in the XL1 set, to Xietu Road in the L set. Of the three segments, there was high congestion on Shaanxi South Road, adequate traffic volumes in report to the roadway capacity on Shangcheng Road, and oversized roadway on Xietu Road. Furthermore, the narrow Nanquan Road (XL2 set) was predisposed to congestion, while the parallel Pucheng Road (XL2 set) was oversized for the actual traffic needs.

Additionally, cars in the Chinese context were still seen as a status symbol, visible especially in the proximity of the high-end compounds (on Mengzi West Road, L set, Pucheng Road, XL2 set). Nevertheless, higher percentages of two-wheelers from the total number of vehicles were recorded on the segments in Puxi (S, M, L segments).

Concerning the pedestrian environment, the light coming from shops, from advertisements, and from ambulant vendors made it possible to have more visibility and a more vibrant space on pavements at night-time. Where there were no commercial activities, the space remained most often in darkness. Furthermore, concerning the limited seating, residents and shopkeepers brought out their own chairs or were using the parked bikes and the borders as improvised seating. Additionally, it has been observed how groups of people gathered for varying activities on the wider pavement portions, adapting them to their needs, at the same time not having other suitable open spaces or parks in proximity to follow their hobbies.

At last, the historical period of construction of the blocks and buildings bordering the segments explained many of the other morphological characteristics related to setbacks, heights, to having lanes or alleys within blocks, to the linkage to the street, as well as to the degree of enclosure, of complexity, to the scale of the built environment. Overall, higher degrees of complexity, transparency, enclosure, linkage have been encountered on the traditional segments (in the S and M set), that were additionally planned at human scale (with lower heights), compared to the other socialist or modernist segments (in the L, XL1 and XL2 sets).

6.9.2 Physical Facilities for Living and the Mix of Uses

Inadequate basic facilities in the older living areas have been encountered, especially along the S and M streets, lacking private toilets and gas system in kitchens.

On the other hand, from the studied cases, it clearly resulted that the tendency of construction in the newly developed areas is oriented more towards mono-functional residential streets (see L, XL2 sets), in contrast with the traditional, older streets that had a higher mix of uses (S, M, but also XL1 to some extent).

6.9.3 Local Economic Activities

The businesses that attracted the highest numbers of customers were shops with vegetables, fruits, snacks, and tobacco, small restaurants, as well as bike and shoes repairing stalls, which were more often encountered on the S, M, XL1 segments, compared to the L or XL2 segments, that had more specialized stores. Furthermore, while some segments were almost lacking commerce (especially in the

XL2 set), other segments experienced crowded pavements due to intense shopping activities (in the S, M, XL1 sets). However, wherever stores became walled through government decisions, there was no-one lingering around them. Yet, some food stores were questionable regarding food safety and the quality of products.

6.9.4 Safety

Security cameras, security guards or gatemen were present on all the street segments. Furthermore, concerning safety from traffic, the two-wheelers, that were not respecting traffic rules, and that were stopping in the middle of the traffic to check their phones, represented a potential risk for traffic conflicts. What is more, accidents have been witnessed on some of the segments that had more uniform traffic conditions, with generally respected traffic rules (Xietu Road, L set, Shangcheng Road, XL1 set, Qixia Road, XL1 set). Yet, people have been seen walking on the roadway, along vehicles, on several segments.

Concerning safety in living, the fact that many entrances to residential compounds were blocked indicates possible security concerns. Additionally, the fewer entry-exit points planned to the higher-class compounds on the L and XL2 segments coincided with the later time of building and with the higher differentiations among income classes, which could also be interpreted as a public safety concern.

6.9.5 Social Interaction and Public Life

The people that used the space of the selected streets were either inhabitants, shop owners or visitors (native Chinese or foreigners), depending on the business dimension of the street and on the touristic attractions.

Based on the conducted on-site observations, many activities taking place on the street were continuous and constant in volumes and intensity throughout the day, throughout the weekdays-weekends, and throughout the seasons. Some of the most common activities included: shopkeepers arranging merchandise and chatting among themselves or with the passers-by, and residents waiting for transport means, playing board games or forming chatting groups with other neighbours. Some time-dependent activities on the segments were noticed at the lunch and dinner time, as well as at the start and the end of work and school days.

However, significant differences have been recorded between the high amount of activities on the streets with a tighter urban fabric (mainly within the S and M sets) compared to the low amount of human activities on the streets bordering loose urban areas, with large distances between buildings (mainly within the XL2 set). Furthermore, small-scale commercial activities were reasons for attracting more human activities.

6.9.6 Sense of Place and Belonging

More street distinctiveness and identity was accumulated on the older streets (in the S and M sets), compared to the segments with frontages built in socialist and modernist styles which were highly standardized. However, on the S and M streets, more visual disorder, less cleanliness and more unpleasant smells were encountered. Furthermore, unsuccessful cases of recently designed pavements with portions that were too wide, and marginalizing certain categories of people became underused, or were turned into informal places for waste selection, recycling, and uncivilized behaviour. Additionally, a need for more public toilets on the streets also emerged.

7 DISCUSSION

7.1 Introduction to Chapter 7

This chapter discusses the findings resulting from the different stages of this research. It starts with a discussion of lessons learned from the selected streets, revealing the way liveability indicators combine on S, M, L, XL1 and XL2 street sets and potential interventions for improvement.

Furthermore, emerging themes of Research Objective II (meant to examine the effect of liveability indicators, and to inform the design and planning of liveable streets in Shanghai) are discussed. These themes emerged when responding to four research sub-questions, identifying the way morphological features, automotive traffic, physical facilities for living and economic activities, as well as socio-psychological aspects affect liveability on residential streets in Shanghai (sq1, sq2, sq3 and sq4).

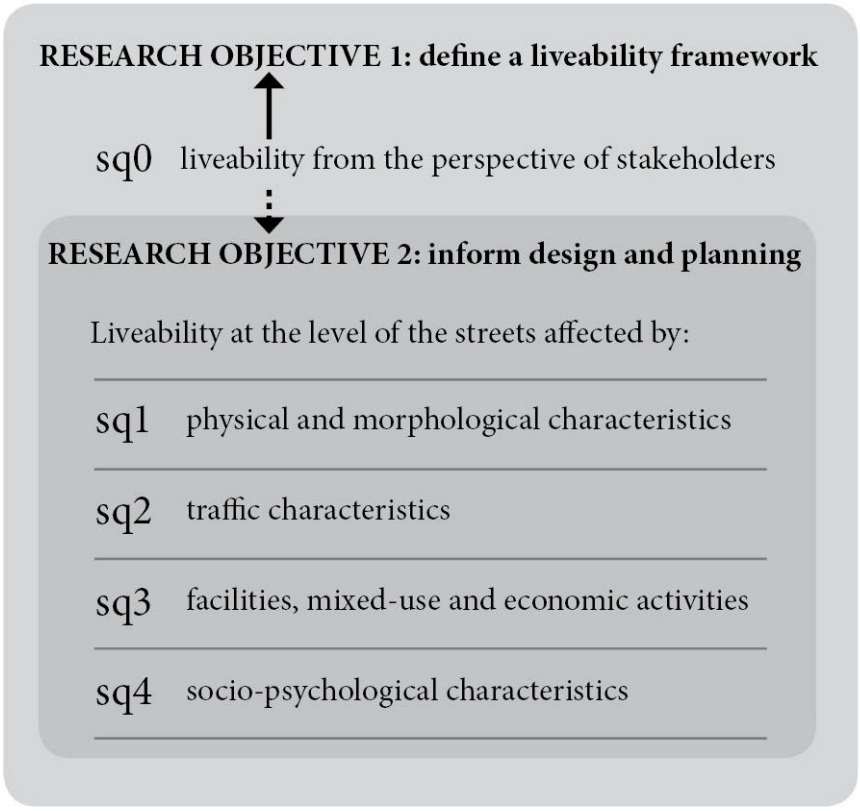

Figure 7-1: Structure of discussed themes according to research objectives

Furthermore, discussion to Research Objective I (meant to define liveability at the level of the streets in Shanghai based on a converged framework of influential liveability factors) starts with revealing differences and similarities in the overall perception of liveable streets from the part of stakeholders in this study - residents and professionals (answering to research sub-question sq0, see Figure 7-1). Moreover, the aggregated understanding of assessed liveability indicators (from the Methodological Framework of Indicators, see Chapter 3, Table Table 3-7, page 117) is discussed, resulting in a converged framework of liveability qualities and sub-qualities in Shanghai. Furthermore, the influence of findings from the level of the street to the level of the city in Shanghai is also discussed.

For each theme discussed in this chapter, the main argument that this study makes is highlighted in *italics*, followed by evidence from the empirical study, comparisons with other results from the literature, or possible ways to address the identified problematics.

7.2 Advantages and disadvantages of the selected streets

Shanghai streets are places of contrast, on which a tacit negotiation is taking place in the way the street space is used. Nevertheless, each set of streets presented both positive and negative aspects, for which interventions are accordingly needed.

7.2.1 The S streets

The positive aspects of the S streets are the social capital formed and the authenticity of the old town. Negative aspects are the poor living conditions and facilities, as well as the low sanitation and cleanliness of the streets and in living areas. On the S segments as well as on the M segments, places with a diversity of uses and of business have been identified - lively places, with active street life at different times of the day. These aspects are, however, at the cost of poor living conditions and crowded spaces.

Shanties and old *lilong* houses (low-rises of up to 3 floors) built in the 1900s, which were dominant on the three S segments, failed to meet the residents' expectations for improved living conditions. The inadequate housing on more than 60% of the area and missing branching to sewage and gas systems were reasons for which one third of the residents expected demolitions and high compensations from the Government. Furthermore, along with overcrowded housing (with 60-70% built coverage), sanitation and cleanliness were alarming in the S area.

Nevertheless, the high building coverage and small living units did have their influence on the way residents chose to conduct many of their domestic activities outdoors, on lanes and streets, as 62.5% of respondents informed. Furthermore, the small-scale business and the small-scale mixed-use were appreciated by the residents, having many grocery and eating places in proximity, as well as good educational centres. Yet, in recent years, with stricter regulations adopted towards small and ambulant vendors, the business and social activity got diminished, while the commercial character of some streets was almost lost. Overall, however, positive results of the knitted living and of the remaining small businesses on the S segments (with up to 65% active frontages), consisting in the vibrant street life, were still visible. Many people still had reasons to linger on the street on a continuous basis, resulting in a street space similar to an extended 'living-room' (comparison put forth

by Engwicht, 1999, in a Western context, yet in this Chinese context it had an additional commercial value). Moreover, having people that lived together for a long time (up to 60-70 years) also contributed to the development of a vibrant community, and to a rich social capital (corroborating findings of Chang & Tipple, 2009).

In these conditions, although it might seem that the only suitable intervention in the S area would be mass demolition, efforts need to be made to ensure that the social capital formed over the years is not lost. As a first step, with immediate implementation, general cleanliness and sanitation are needed to eliminate any public health risks. Afterwards, based on historical and structural analyses, it can be decided which buildings are worth being preserved and which ones need to be rebuilt. By saving some of the buildings with architectural value, such as *lilong* houses, creative uses can be stimulated, conducted with affordable means by artists, antique collectors and others. In this manner, by making efforts to preserve the authentic character of the neighbourhood, what could be saved might prove to be of immense value, socially, architecturally and economically. If the conversion and upgrade of the traditional housing is not possible, new low-rise (3-5 floors), or, as an exception, mid-rise buildings (6-8 floors) could be inserted. High-rises such as the one inserted on Penglai Road (P+27) should be avoided. Partial demolition should mainly focus on buildings in the worst condition, including shanties, temporary and illegal buildings. Furthermore, the original alignment of buildings to the street edge should be kept, so that active ground floors and opportunities for businesses can still develop, and multiple human activities can still flourish. The systematic interventions to insure basic facilities in the S (but also M) area, including the provision of sewage and gas pipes can be upfront planned on a smart eco-grid, adopting the recommendation of Du et al. (2012) for old areas in Chinese cities.

Furthermore, although the land in the old town is very expensive, and despite pressures of gentrification and privatisation, it is important to consider alternatives for keeping some of the current residents in place. If reconstruction is unavoidable, original residents can be given the option to return after the work is complete, perhaps offered smaller living units, along with the option to move to the outskirts of the city in larger units. In the end, the aim is not to lose the identity of the place, even if relocation might be partly or temporarily needed.

Furthermore, through interviews it emerged that the very narrow streets (of 4-7m) were considered inconvenient and impediments to economic prosperity by a

third of inhabitants. Nevertheless, concerning the Government's intention to have new, wider circulation arteries that cut through the remaining old areas, the foreseen danger is that of broken social networks. By observing how the two wide arteries splitting the Old Town into quarters (Fuxing Road and Henan South Road, see Chapter 3, Figure 3-14, page 83) enhanced automobile circulation but eliminated traditional life, plans to have additional arteries that cut through the remaining old areas should be discarded. Thus, as long as access to emergency vehicles can be ensured, it would not be necessary to widen the S streets, or to break the street pattern on very short blocks (smaller than 100m x 200m). Nevertheless, to improve accessibility, the peripheral circulation around the Old Town needs to be organised better, with car parking spaces organised only outside the historical area or in underground car parks. Furthermore, while addressing residents' complaints about congestion and disordered parking, the conditions for walking and cycling within the Old Town still need to be improved. In this regard, rather than having interrupted pavements on which pedestrians could not walk on more than 60% of the segments' lengths, it is recommended to have pavements and roadways placed at the same level. In this way, the street would become an extension of the residential compounds and of the habitation area, similar to a 'shared street' - where people and vehicles share the same space, but pedestrians are prioritized, overall enabling a lower impact of vehicular traffic on street life. Street furniture, bollards where needed, planters and varied pavement treatment can direct the occasional drivers and e-bike riders.

Xicangqiao Street (S set, labelled with low traffic volumes)

Figure 7-2: Image of Xicangqiao Street (S set)[71]

Fifty percent of residents seen the narrow Xicangqiao segment as the main cause of the congested space in which they had to live. Problematic was especially the supply access to stores located on this segment of 4-5m width. However, more urgent issues concerned the poor sanitation level, the poor living conditions and basic facilities (as mentioned by 60% of respondents), as well as the fact that illegal businesses were conducted on this less-accessed street, some of whom were licentious. Nevertheless, with houses placed in direct connection to the street on 80% of the segment length, with human scale, and people conducting domestic activities on a daily basis, the overall feeling on this street was of cosiness and of calm that was rarely disturbed; therefore, in future interventions, Xicangqiao Street could similarly remain characterised by more domestic-oriented activities.

[71] Pictures taken in November 2016.

Wenmiao Road (S set, labelled with medium traffic volumes)

Figure 7-3: Image of Wenmiao Road (S set)

The image of the street was improved on Wenmiao Road, following simple interventions such as a recently built public toilet and better looking stores opened closer to the Wenmiao temple. Nevertheless, matters that required attention in the S area were common for this segment as well, especially concerning the provision of basic facilities to houses and improved living conditions.

In future interventions, on the western half on Wenmiao Road, which is closer to Wenmiao Temple, the touristic and commercial functions can be further explored. However, this should be done in correlation with the residential function. The possibility to enhance the business function emerged by observing how informal businesses took place on this segment, conducted by the residents especially at weekends. Similarly, the possibility to expand the commercial ground floors to the eastern half of the segment can be considered.

Penglai Road (S set, labelled with high traffic volumes)

Figure 7-4: Image of Penglai Road (S set)

With insertions of mid-rise and high-rise residential buildings following demolitions of older low-rises, and with many of the leather merchants being forced to close their stores, this segment was slowly losing its business function and its identity. However, the centrality of Penglai Road, the cheap rents and high accessibility offered opportunities for other types of businesses to flourish in the remaining old buildings, which ensured the liveliness of Penglai Road. Therefore, in renewal projects, some of the existing structures could be further turned into small office and business spaces on Penglai Road, without losing entirely the residential function of the street.

Nevertheless, with many varied business and domestic activities taking place in a relatively narrow space, along with a high number of transiting pedestrians (50 people passing in 5 minutes) on interrupted pavements, this segment seemed to be chaotic at times. However, while prioritizing walking, the characteristic of a shared street space on this segment can further be explored.

7.2.1.1 Correlation of liveability indicators on the S streets

The historical period of development in the S area (19th century) was linked to both positive and negative aspects of living. The positive aspects were related to affordable rents, accommodating diverse social classes and small businesses. Besides, small businesses on the S segments developed easily due to the central location and the high number of passers-by; however, advantageous for the establishment of business were also the very short blocks, with no setbacks and the high linkage to the street. As the residents preferred to spend their time on streets or lanes and to meet their friends in front of small shops or in restaurants, a mutual relation was formed between economic activities, social interaction, safety and sense of place and belonging on the S segments, while a vibrant social life was formed. Overall, having buildings aligned to the street and small-scale businesses forming active ground-floors, in addition to domestic and social activities conducted on narrow segments built at human scale, positively influenced safety perception and community life. These all contributed positively to liveability.

On the other hand, negatively affecting liveability were the unsuitable living conditions and facilities, as well as the poor levels of cleanliness and sanitation.

7.2.2 The M streets

The positive aspects on the M streets are the strong social ties and the social capital formed, as well as the architectural heritage of the former French Concession. The negative aspects include the crowded living areas, the unavailability of private toilets and kitchens for all residents, and the surface renovation of buildings.

It was the dense-built housing (a building coverage of 60-70%) at human scale, the short blocks (of about 200m x 200m), and the local economic activities aligned at ground floors that led to flourishing human activities and insured safety on the M segments.

Furthermore, the morphological character of the M area, with better preserved '*lilong*' houses, part of the Historical and Cultural Scenery zone in the Former French Concession, was a reason of pride for residents and provided a characteristic identity to the M streets. However, when basic facilities were not met, 20% of respondents considered that these buildings were too old for living. Nevertheless, the *lilong* architecture, which also attracts artists and foreigners, and provides opportunities for business development, should be preserved. Thus, considering that the existing urban tissue has architectural and urbanistic value, creative solutions can be found to explore further the potential of the area and to transform it into a place of high attractiveness in the heart of Shanghai. Inspiring can be how, in historical villas in the former French Concession, through creative interior designs and improved facilities, the cost of rents has ascended significantly, indicating a high potential for redevelopment. Nevertheless, if insertions or partial replacements of the urban fabric are unavoidable as a result of structural and historical studies, high-rises (such as the one on Jiashan Road of P+28, see Figure 6-20, page 205, Chapter 6) should be avoided, as it breaks the identity of the area, while human activities on the street decrease.

It also emerged that the M streets, planned over 100 years ago with European influences, could accommodate with difficulty the traffic volumes of today, despite all the interventions of adopting one-way directions on parallel roads. Nevertheless, although traffic pressure is high, the roadways (of up to 11m) need not be widened, as this would break the consistency and the character of the former Concession area.

Instead, shared transport means, including bike sharing, could be encouraged more on the M segments, while visual and physical measures can be applied to reduce car use. Finally, the plane trees that are specific to the French Concession and bring additional character to the streets need to be well preserved; although widening the pavements might be needed on some portions (such as on Shaanxi South Road), the street trees should not be affected.

Jiashan Road (M set, labelled with low traffic volumes)

Figure 7-5: Image of Jiashan Road (M set)

On Jiashan Road, the neighbours lived in a close-knitted community, a result of high-density housing built at human scale, on a segment with low traffic volumes. In contrast to the corner of the newly inserted high-rise building (P+28) where not much activity was taking place, the middle part of the segment with low-rises (P+1) bordered by small shops at ground floors was highly active. Thus, the importance of small-scale businesses forming active ground floors that generate a vibrant street life emerged once again. Furthermore, the character of the street with *lilong* buildings, the small-scale business and the low traffic volumes recorded (576.8 PCE/h of whom 310.8PCE/h were two-wheelers) is opportune for a shared street space with priority for pedestrians and cyclists, where even more social activities can flourish.

Xiangyang Road (M set, labelled with medium traffic volumes)

Figure 7-6: Image of Xiangyang Road (M set)

On Xiangyang Road, a prosperous shopping segment with many small shops aligned at the ground floors of the mid-rise buildings, the main dissatisfaction regarded the shutdown of traditional breakfast shops. This showed the importance of respecting residents' habits even in small urban interventions.

Furthermore, as the bike lanes were too narrow (0.75m) for the actual volume of two-wheelers (352,8 PCE/h), bikers often rode on car lanes, which made traffic patterns seem chaotic and unpredictable. In addition, as vehicles (in total 1060,8 PCE/h) passed almost continuously on this narrow segment (of 8-9m), the street appeared unsafe for crossing for the elderly.

The street did not have major issues and 85% of respondents were satisfied with living on this street; nevertheless, being bordered by buildings from the 1900s, few respondents (15%) still hoped for the complete renewal of the street through demolitions of low-rises (P+1), in the prospect of getting new homes with improved facilities. This shows the confused judgement towards old buildings from the part of residents. However, through renovations that improve living facilities, the charm of the street could be maintained.

Shaanxi South Road (M set, labelled with high traffic volumes)

Figure 7-7: Image of Shaanxi South Road (M set)

What made Shaanxi South Road a special street was the character of the buildings, especially the heritage Cité Bourgogne compound dating from 1930s, for which the residents were proud, although facilities still needed improvement.

On Shaanxi South Road, a segment with high traffic volumes and narrow pavements, not as many business and social activities were pursued as on the other parallel segments in the M set. More social activities were pursued on lanes. Nevertheless, when enquired, the residents were not bothered much by the volumes of traffic, and friendships could develop on the other side of the street as well (for 23% of respondents). Yet, the importance given to motorized traffic in comparison to accommodating pedestrians affected the business environment, resulting in having stores with less customers, and therefore several stores closed. It was still the cheap shops addressed to the locals that had relatively high numbers of customers and generated liveliness on the street. Nevertheless, Shanxi South Road, a street with heritage frontages, should prioritize non-motorized transport, which would insure an overall more successful business and social environment.

7.2.2.1 Correlation of liveability indicators on the M streets

One of the most revealing indicators for the M segments is the historical period of construction during the Foreign Concession period, combining Chinese and Western characteristics, and resulting in narrow roadways, short blocks, specific street trees, as well as a specific disposition and typology of buildings (aligned to the street, with no setbacks, and with commercial ground floors). All these characteristics lead to a non-monotonous street environment that welcomed human activities and business activities to flourish, which enhanced public safety and social interaction. Furthermore, the accumulated street distinctiveness on the M segments enhanced the sense of place and belonging.

In order to support the valuable social networks formed on the M segments while addressing residents' expectations for more comfortable living conditions, attention needs to be given to: having improved living conditions and basic facilities in renovated heritage buildings, having improved cleanliness and sanitation in living areas, as well as to having improved circulation conditions for non-motorised transport.

7.2.3 The L streets

The positives in the L set consisted in the mix of older and newer housing compounds that allowed the formation of diverse lifestyles, in proximity to a good amount of services and facilities. The negatives in the L set included the growing road profiles and the segregation induced by the disparate organisation of compounds inhabited by different social classes.

The L segments offered the best opportunity to observe, on the same segments, the differences between mid-rise compounds (P+5) inhabited by middle and lower social classes, which had more liveliness, in contrast to high-rise compounds (P+30) inhabited by higher social classes, which had more orderliness, but less liveliness. Yet, the high-rises in the L area could benefit of the small and affordable economic activities situated at the ground floors of the mid-rise buildings. The building conditions and the living environments on the L streets were improved compared to the S and M streets; overall, however, along with reconstructions, less small businesses bordered the segments and less social interaction was encountered. The high-rise compounds inhabited by the higher social classes were especially lacking human activities around them (see also Chapter 5, section 5.2.6). The research on the L segments showed how, with larger blocks (of up to 300m x 300m) and growing road widths (up to 20m), bordered by high-class compounds with larger setbacks (5-10m), the amount of active ground floors decreased, despite increased pavement dimensions of 3-4m, ideally meant to accommodate pedestrian activity more comfortably.

Therefore, along with the trends of urban renewal in this area, the elimination of small shops is problematic. Small-scale business activities (currently established nearby the older buildings) should instead be encouraged in the L area, by planning commercial strategies in the wider context to link several streets with business potential. Finally, as 41% of respondents complained about having too many parked vehicles on streets and pavements, creative parking solutions need to be found, and more space given in the use of socio-economic activities.

Mengzi West Road (L set, labelled with low traffic volumes)

Figure 7-8: Image of Mengzi West Road (L set)

The contrasting character of current living standards in Shanghai was most obvious on Mengzi West Road: one side bordered by mid-rise buildings (P+5) with a higher density (40-50% building coverage), and inhabited by lower and middle social classes; another side bordered by high-rises (P+30) with low building coverage (15%) and high green coverage (50%), but no active frontages, inhabited by higher social classes. Although in the high-class compound, the high amount of green space was appreciated and gave distinctiveness to the street, almost no signs of human activities were seen around it, which further attracted unwanted behaviour, such as taxi drivers urinating on the street side. In contrast, at the market and near-by few other small shops on the side of the mid-rises, along with thriving business, much more liveliness was encountered.

On Mengzi West Road, although with low traffic volumes (234.7 PCE/h), very few respondents indicated social relations formed across the two sides of the street (1 out of 9 respondents to drawing questions). As traffic did not represent a barrier, impeding the formation of social relations was the organization in gated compounds with very different characters, along with high security implemented around the high-class compound. Nevertheless, a common place of activity for the

two different social groups was the market, where many were shopping for food (as mentioned by 27% of respondents), thus economic activities around the market could be allowed to expand in order to promote more active social exchange as well.

Liyuan Road (L set, labelled with medium traffic volumes)

Figure 7-9: Image of Liyuan Road (L set)

Liyuan Road was bordered by compounds inhabited by either the lower, middle or higher social classes. However, compared to the parallel Mengzi West Road, the compounds were more mixed in their disposition on the street, and had more transparent edges. Additionally, by having stores at ground floors, the street gained human scale even along the high-rise compounds. For these reasons, more human activity took place on both sides of Liyuan Road (with 65% active ground floors), compared to Mengzi West Road.

On Liyuan Road, it was clear how grocery stores attracted the highest numbers of customers, while other household or clothes stores, although small, had less customers, especially as this segment was not included in a business continuum. Nevertheless, being in relative proximity to the metro station (500m), many people walked from one side of the street to the other, which added to the human activity on the street, although not necessarily stopping to shop.

What attracted the highest number of people on this street was the small park across the north-east corner of the segment, a vibrant place used for social and leisure activities. Discontentment of some residents (33%) concerned the loud music from square dancing, yet dancing was one of the main activity for 58% of respondents. This reveals potential conflicts among the lifestyle and habits of residents, especially when living in highly-dense areas. However, to promote more socially-inclusive spaces, activities of different social groups need to be welcomed on the L streets. If needed, specifically-designated spaces can be provided for different types of activities.

Xietu Road (L set, labelled with high traffic volumes)

Figure 7-10: Image of Xietu Road (L set)

Xietu Road had the characteristics of an urban boulevard considering its widths (20m roadway, 6m walkways), however the greenery and the image of the street were not representative enough. With seemingly longer distances to walk between intersections (situated at 340m), with less possibilities to cross the street, and with a high number of parked vehicles on pavements (reason of complaint for 30% of respondents), this segment was inconvenient for walking. In order to turn Xietu Road into an authentic urban boulevard, plantations of street trees can be considered, either on the central road axis or as a buffer between the car and the

bicycle lanes, as the roadway width was oversized for the current amount of traffic (1716 PCE/h). Additionally, the walking conditions need to be improved.

On Xietu Road, the appropriation of the street space was visibly different, according to the flexibility given in the use of pavements. Firstly, despite the disorder encountered in front of affordable businesses at the ground floors of functionalist buildings, the space of the street merged naturally with the inside of the shops and passers-by could have a direct communication with shop assistants. In contrast, on the side of modern residential compounds, the private and the public domains were clearly demarcated through opaque walls and fences, inducing a feeling of segregation. At last, in front of buildings with public functions such as hotels, offices, and banks, although the public and the private spaces were not physically separated, an inclusive space was not promoted due to strict regulations enforced on who could actually use the space.

Overall, coinciding with the lower number of small stores, with wider roadways and higher traffic volumes, much less human activity and interaction were encountered on this segment compared to the other two parallel segments. However, the older buildings brought some diversity and liveliness to this street segment, along with possibility of affordable rents to commercial spaces, despite less convenient living facilities, and this aspect should be considered in future regeneration plans.

7.2.3.1 Correlation of liveability indicators on the L streets

The L segments revealed once again the importance of small-scale businesses and of active ground floors for animated streets with human activity and pedestrian-friendly environments. It emerged that, along with rebuilding operations, the small-scale commerce and the street distinctiveness were negatively affected, despite the central location in the city. Furthermore, the importance of flexibility in the use of the street space emerged in the L area, revealing how residents and shopkeepers could appropriate and animate the street space (in reasonably-dense living environments), if allowed.

The larger blocks and the growing urban roadways in the L set (compared to the S and M sets), as well as the crowded parking affected the walking comfort and the crossing possibilities. Overall, frontages with active ground floors and pavements without obstacles, along a redistribution of the wide road space can positively influence liveability on the L segments.

7.2.4 The XL1 streets

In the XL1 set, the positive aspects comprised the continuous frontages to the street that allowed commercial ground floors to flourish. The negative aspects included the monotonous built environment and the wide roadways along with narrow walkways.

Despite the very similar living environments on the three XL1 segments, extremes in the amount of human activities have been encountered among all the street cases in this study: on Rushan Road, the highest amount of pedestrians flows (17 people per minute) together with one of the highest amounts of small shops (on 80% active ground floors) have been recorded, while on Shangcheng Road, one of the lowest amount of pedestrians (4 people per minute) along with the least amount of commercial space (15% active ground floors) was recorded. The third segment in the set, Qixia Road, had a good amount of shops (65% active ground floors), but lower accessibility in the road network and therefore less people shopping and spending time on the street compared to Rushan Road, but much more than on Shangcheng Road. It clearly emerged the relationship established between having different amounts of small-scale commerce and attracting different amounts of human activities on streets.

In addition, looking at the two more active XL1 segments, it emerged how, despite monotonous frontages fully bordered by functionalist architecture (of P+5) on very large blocks (of up to 350m x 350m) , through the presence of intense commercial activity (on 65-80% of the frontage), streets can be lively and can gain a specific identity. Because of this, the small-scale commerce on Rushan Road and Qixia Road should be further maintained and encouraged, as it provided reasons for people to linger in the public space on a continuous basis.

Initiatives such as lighting up the roof edges helped to improve the image of the XL1 streets at night-time, but they need to be further supplemented with other interventions to tackle the issue of monotony, such as renovating the façades of residential buildings, and refurbishing the open spaces. Additionally, infrastructural interventions to roofs and rain water collection systems are required, as respondents informed. Furthermore, small temporary structures with a public function and

modern architecture could be inserted on the XL1 streets, as this would bring a touch of contemporaneity to the area.

Qixia Road (XL1 set, labelled with low traffic volumes)

Figure 7-11: Image of Qixia Road (XL1 set)

Although the traffic volumes on Qixia Road were very low (293,2 PCE/h), two thirds of the respondents (66%) indicated acquaintances only on the same side of the street where they lived, due to the disparate organization in enclosed compounds.

Furthermore, the atmosphere on Qixia Road, where groups got engaged in activities such as sitting, chatting and eating near-by small restaurants, was becoming slowly changed after some stores were shut due to missing business licences. From the inside of opened stores, shopkeepers could watch the street at all time and get engaged in conversations with passers-by. In contrast, in front of recently walled stores, people rarely stopped or gathered. Thus, the critical importance of ground-floor commerce in generating activities, interaction and public safety on residential streets emerged repeatedly. In addition, while in front of small stores the pavements were too narrow to accommodate all the activities, on the side of the hotel and of larger convenient stores wide pavements were provided, which became occupied by

parked vehicles. This situation indicated an unbalanced allocation of the pedestrian space in relation to commercial spaces.

Another cause for the changing business environment on Qixia Road was the lowered accessibility through the restricted circulation over Dongfang Road, which, along with reducing the motorized traffic, it also led to a reduced business environment. In addition, uncontrolled spaces resulting under the pedestrian bridge following this infrastructure intervention need improvement by means of creative solutions, to eliminate gathering dirt and other dangers of public health issues. Qixia Road can be further regarded as a quieter version of Rushan Road, with quieter activities such as foot massage and small restaurants.

Rushan Road (XL1 set, labelled with medium traffic volumes)

Figure 7-12: Image of Rushan Road (XL1 set)

Rushan Road (XL1 set), a segment with relatively uninteresting frontages and functionalist architecture became very animated and had a dynamic business and social environment through intense shopping activities. However, narrow pavement portions could not comfortably accommodate the richness of activities and the large volumes of pedestrians. This caused inconveniences and, at times, pedestrians were forced to walk on the roadway. Furthermore, the bike lanes were narrow considering the volumes of bikers (calculated as 333,6 PCE/h), while for the one-way motorized

circulation three car lanes have been provided. This situation showed the higher importance given to cars compared to walking and cycling in current Chinese city planning (as also argued Pucher et al., 2007). Furthermore, when Pudong Avenue has been reopened for circulation, a recalculation of traffic volumes on Rushan Road, having high traffic fluctuations between morning, evening and mid-day (of 2000PCE/h, 1200PCE/h and 800PCE/h), is recommended. The organisation of the street space can be rebalanced between the motorised and the non-motorised circulation, to provide more space for pedestrians at least on the north side of the roadway, and the segment could be transformed into a successful shopping street. For instance, widening the pavements by at least 1m is imperative for 2m wide pavements on Rushan Road, experiencing intense pedestrian activity along commercial ground-floors (see also Figure 6-35, pictures ‘a’ and ‘f’, page 227). On Rushan Road, the solution therefore is not in reducing the amount of commercial activities but in providing more comfortable spaces, appropriately-sized pavements, seats and shade near to places where people gather. Rushan Road (XL1 set) is an example of how lively shopping streets can co-exist with residential functions.

In addition, the need for more convenient crossings for pedestrians emerged from the fact that, despite having separating fences between circulation modes and a zebra crossing added in the middle of the segment, people still crossed the street randomly, for an easier access to stores. This could lead to traffic safety issues.

Concerning social activities, some groups of residents gathered beyond compound gates, where it was quieter in comparison to the dynamic street life. Nevertheless, the pocket green space on the segment was completely empty, having no seating and being away from the animated places. It revealed the unfriendly open space design, unsuitable for the human activities taking place on the street. Overall, benches and seating are highly needed on this segment, in proximity to shops as well as in the small green square.

Shangcheng Road (XL1 set, labelled with high traffic volumes)

Figure 7-13: Image of Shangcheng Road (XL1 set)

The very limited commercial space, the functionalist frontages, the high traffic volumes with high speeds led to a dull street space on Shangcheng Road, without identity. Even necessary activities were very limited on this segment, and the main reason for which people used this street was to walk to the closest subway station (700m away), or to wait for the bus.

At the lane and alley entrances from Shangcheng Road, not so many people were seen either. At the same time, within the same compounds, but on the side bordering Rushan Road, large groups of people gathered to watch the dynamic shopping street. This revealed how commercial spaces and places with intense human activities had the role of attractors for more people on the streets.

Furthermore, this high traffic artery, with a wide transversal profile, organized as one-way road, proved inefficient and confusing, because: high traffic volumes were coming in waves and sometimes the street was crowded and noisy, and other times the street was almost completely empty; furthermore, accidents involving vehicles have been witnessed on this segment. Therefore, if the wider road network allows it, Shangcheng Road can be considered for two-way traffic.

Nevertheless, for Shangcheng Road (with up to 1800 PCE/h), as it is directly connected to important motorised arteries, its circulation function can remain dominant. Furthermore, the narrow pavements are not suitable for encouraging increased commercial or human activity, but other small real estate offices could become established on this segment.

7.2.4.1 Correlation of liveability indicators on the XL1 streets

The most revealing indicators on the XL1 segments included the diversity of small-scale businesses that attracted vibrant human activities on streets and generated a certain street distinctiveness, despite the monotony of functionalist frontages. The active ground floors of buildings aligned to the street edge also provided a human scale to streets. Nevertheless, more attention is required to a road space distribution that considers all the street uses and street users, to proper-sized pavements for human activities, and to convenient pedestrian crossings especially on segments with commercial potential, along with overall improved conditions for walking and cycling.

7.2.5 The XL2 streets

In the XL2 set, the positive aspect consisted particularly in the generous green spaces, while the negative aspects consisted in the growing distances between buildings and between intersections, in the wide road profiles, and in the high volumes of traffic.

In the XL2 area, with taller buildings (up to P+50) that had modern but impersonal glass, concrete and steel facades, with longer distances between buildings (up to 50m) and longer distances to walk between intersections (on blocks of up to 300m x 500m), the social interaction and the human activities were almost missing from streets. Furthermore, by not having public spaces on the street where people could come together for common activities, social life was not encouraged on the XL2 streets. Luckily, within the remaining compounds inhabited by the lower and middle classes, more lively scenes could be sometimes seen, where older people stood outside and occasionally chatted. However, in the newer, higher-class compounds, people have rarely been seen spending time outdoors. Overall, along with more high-class compounds, less small businesses were encountered, sometimes replaced by specialized stores that were rarely populated.

Furthermore, as the XL2 segments were very long and tiring to walk, the provision of open access to pedestrian alleys within compounds (as a response to the MOHURD directive, 2015) would be beneficial. By making openly available the connecting alleys across blocks, all residents as well as non-residents would benefit. This would bring more frequent opportunities to turn corners (aspect also emphasized by Jacobs, 1961:1993, for lively streets), an improved street life, and possibilities for small businesses to develop on the XL2 streets. It would improve the limited access to services and it would also be a chance for the XL2 streets, which do not have a specific identity, being similar with many other contemporary developments in Pudong District, to gain character and sense of place.

Pucheng Road (XL2 set, labelled with low traffic volumes)

Figure 7-14: Image of Pucheng Road (XL2 set)

Because of the modernist scale of the built environment, the human activities that took place on Pucheng Road seemed insignificant (25 people passing in 5 min), and the street appeared to be almost empty. The parts with some human activities, such as the yard of the seafood restaurant and the bike repairing spots, appeared as just instances on the long and wide segment of Pucheng Road. That is because pavements were oversized on some portions (up to 8m), setbacks were large (over 10m), seating was lacking and other urban furniture was limited, overall lacking habitation signs. Hence, human activities were not attracted on this street. Furthermore, although some spaces along the street had luxuriant vegetation and have been fancifully designed, the access to such spaces was restricted (see the corner square in the use of the Shimao Residences). Consequently, the street side bordered by the high-end Shimao compound, instead of being elegant as intended, due to large setbacks and a lack of human activity, it was randomly used by street cleaners and informal refuse collectors.

Most of the residents (95%) did not have acquaintances on the other side of the street; social relations on the street formed less, mainly because of the clearly separated living environments on the two street sides, to which the wide roadway (of

14m), as well as the impersonal street fronts with buildings being far from the street, added.

Overall, the segment of Pucheng Road was underused at the time of the study. In addition, due to the elimination of small stores once with the reconstruction of modern compounds, a low accessibility to commercial services emerged.

The case of Pucheng Road (an overly wide roadway for the actual traffic volumes and for its position in the road network, see Figure 7-14), revealed that even a high-end design and one side bordered entirely by vegetation (behind gates and fences) do not replace human activity on the segment, and do not bring about overall pleasant pedestrian experiences.

As a first step, unrestricted access should be given to public spaces, along with more flexibility in the use of the street space, and opportunities for small businesses to emerge – all these would add liveliness to the street.

Nanquan Road (XL2 set, labelled with medium traffic volumes)

Figure 7-15: Image of Nanquan Road (XL2 set)

On Nanquan Road, the mid-rise buildings (P+5) with pitched roofs built in the 1970s-1980s (similar to condominium villas) are worth to be preserved, as they form a satisfactory urban landscape among lush vegetation (see Appendix E1, Figure 46), although the facilities and living conditions need improvement.

Nanquan Road had a high amount of traffic (with an average of 990.8 PCE/h) for the roadway width (11m), reason for which many residents (40%) considered it to be too narrow. Within the road network in the Pudong District, with generally wider road profiles, this segment functioned as a bottle-neck. Nevertheless, although the segment was lengthy, many people walked from one side of the street to the other (627 pedestrians per hour), while many others rode bicycles and e-bikes (454,8 PCE/h), which provided human presence to the street segment.

Yet, the lack of commercial activities on the middle part of the segment was very evident, reason for which much more lively were the segment ends, where commercial and human activities were concentrated. However, planters with seating which have been inserted as modern street furniture were rarely used: a main reason was that, while people needed to gather to a middle point (especially in groups of playing board games, repairing bikes and drinking tea), the seating on the new planters was oriented outwards, turning the seats back-to-back. In this manner, the needs of social groups on this street were ignored for the sake of a sophisticated image of the street. Yet, in view of how the large groups conducting social activities at the street corners uplifted the energy of the street, adapting the street furniture to support such social activities is vital. The simplest solution, taking into account the newly inserted planters (see Figure 6-41, picture ‘b’ and ‘g’, page 235, Chapter 6), is to provide additional foldable chairs and tables, as in this way the residents have flexibility to arrange the street furniture to suit their activities.

Overall, the case of Nanquan Road showed how the effect of automotive traffic can be counteracted with a street environment at human scale, with a narrower street profile and rich street vegetation. For Nanquan Road therefore, it is recommended not to widen the street, despite experiencing traffic congestion. On the contrary, if the segment length would be shortened through providing public access to another main path across the blocks, Nanquan Road has potential to become a successful and lively street. Although this might conflict with the role of the artery in the circulation network, it is recommended that the main traffic to be redirected away from this segment. In addition, Pudong District is dominated by very wide, traffic-oriented arteries, making the human scale characteristics of Nanquan Road in this area special, worth being preserved and enhanced.

Pudong South Road (XL2 set, labelled with high traffic volumes)

Figure 7-16: Image of Pudong South Road (XL2 set)

Pudong South Road was a main artery in the circulation network, a segment with a relatively high percentage of non-residential uses (approximately 40% of the frontage), built at a functionalist scale. Morphologically, it presented itself as a functionalist boulevard, pushing the poverty scenes behind the main frontage, but holding no particular identity in the context of Shanghai, being just as ordinary as many other roads in Pudong District. Nevertheless, although the image of Pudong South Road appeared to be modern following few insertions of office buildings and hotels, most of the living areas remained unchanged over time, with issues of cleanliness and sanitation hidden behind the 'boulevard' image.

The segment was mostly used for transit, and high numbers of people were crowding in bus stops at every moment of the day. For this reason, some commercial activities took place at the convenient stores near-by bus stops. The segment was uncomfortable for walking because of being lengthy (550m), uneasy to cross (26m wide) and overall lacking human scale. On Pudong South Road (with an average of 3612,4 PCE/h), improving crossing facilities is thus imperative, as resulting from both interviews and observations.

Compared to the width of the road, to the scale of the built environment, and in contrast to the high number of cars, the pedestrians using the space of the street seemed to be very few (despite records of 10 pedestrians passing per minute around bus stops). Furthermore, cycling was forbidden, yet, two-wheelers have been seen riding illegally on the roadway or on pavements (bikes and motorbikes calculated as 164.4 PCE/h), revealing the urgency to reconsider the needs of two-wheelers in the inner city. The road network in a wider area could thus be re-examined with a view to allow cyclists to use the street, by converting some of the car lanes to cycle lanes.

On Pudong South Road, a significant fluctuation in the pavement width was encountered (between 1.3m and 10m), revealing various spatial interests: on one hand, the importance given to motorization and parking, as well as the importance of having wide, representative public spaces in front of hotels and offices, although these spaces were rarely populated; on the other hand, it emerged a neglect for bus stops space, often too narrow to accommodate the high numbers of transiting people.

Very few respondents seen Pudong South Road as 'their street', as the respondents referred more often to the inner alleys within compounds. It overall emerged a higher disconnection between the residents and the public street, compared to other residential segments. However, through redistributed street space among street users and by adding street vegetation, this road could gain the character of a boulevard, at least within the Inner Ring Road area.

7.2.5.1 Correlation of liveability indicators on the XL2 streets

With consideration for the XL2 street sites, especially when compared to the S and M streets, the shorter blocks, the linkage to the street and human scale have critical importance for liveability at the level of the street. Whenever these qualities were missing, such as on the XL2 streets, the street space was unsuitable for walking and unfriendly for pedestrians. Along with convenient pedestrian crossings and rethought road space distribution to better accommodate the needs of all street users, additional importance has the diversity of frontages linked to small-scale mixed-uses. Furthermore, having moderate densities built at human scale would additionally eliminate the need for overly-wide distances between buildings, and it would overall provide a better access to services and commercial facilities.

7.3 Emerging themes to Research Objective II

7.3.1 Physical and morphological characteristics affecting liveable streets in Shanghai

7.3.1.1 Importance for liveability of block size, height of building, building coverage, and complexity

The Chinese superblocks brought inconvenience to pedestrians, especially regarding the distances between intersections that were too long to walk, which led to the disappearance of street life. In contrast, shorter blocks ensured walking-friendly environments and more dynamic street life.

The advantage of having shorter blocks for an improved access of pedestrians and cyclists (similarly argued by Cha et al., 2014, Montgomery, 1998, and Jacobs, 1961:1993) was evident when comparing the S and M blocks (of approximately 100m x 200m, or of 200m x 200m) with the XL2 segments (of 500m x 250m).

In the Chinese context, blocks of approximately 200m x 200m are appropriate for residential blocks, allowing a compound organization on lanes, and insuring permeability in the city structure. In addition, adopting shorter blocks can induce a need to build with smaller footprints, and thus increase permeability within the block. Other variations, such as blocks of 300m x 100m (as partially encountered in the L set) or of 250m x 150m are also advantageous. Some of these recommended block sizes are also in accordance with recent recommendations in the Shanghai Street Design Guidelines (2016), in the given example of KIC Village[72]. The recent experiment of the KIC Village, developed on shorter blocks, thus demonstrates a maturity in the developers' thinking, as they discarded the advantages of land administration on superblocks in order to obtain a more permeable city layout.

A greater possibility of achieving moderate densities, as well as more complex and diverse physical environments on residential streets is provided by building mid-rises with smaller footprints (and with associated commercial ground floors).

The densities of buildings and inhabitants were challenging in the Chinese context. At one extreme were the high densities adjacent to the S and M segments

[72] However, urban designers should not fall in the trap of simply adopting Western-inspired designs (as is partially the case with KIC village), without close consideration of context and of residents' lifestyle. KIC Village will prove successful only if it passes the test of time, that is, if residents appropriate it and use it to its full potential.

(with up to 70% building coverage), which demonstrated an uncontrolled agglomeration of people, a result of the historical anthropology of these traditional areas. What is more, the overcrowded spaces adjacent to the S segments have resulted in poor sanitation and other public health issues. At the other extreme was the XL2 area, where, with the aim of avoiding overcrowding, dispersed high-rises have been built, resulting in plots with only 10-15% building coverage and too large distances between buildings (of 50m or more). This, along with a high building standardisation, as opposed to traditional buildings which have a high degree of complexity (see Chapter 6, section 6.2.4.5), has led to monotony. Monotony has also been identified as problematic in the study of Qin et al. (2003) and is actually a common issue in contemporary developments in Chinese cities, leading to uninteresting environments that do not engage people. Furthermore, adjacent to high-rise compounds (of up to 50 floors in the XL2 set) built for the upper classes, interaction of residents with their environment was limited (see also section 7.2.5).

In contrast, even when having mid-rise buildings with a higher building standardisation (such as the XL1 segments, built in the socialist period), by having a moderate density of buildings and commercial ground floors (on Rushan Road, Qixia Road, XL1 set, see section 7.2.4), monotony could be avoided and much human activity was attracted to streets.

Based on this reasoning, as opposed to the current trend of building a sprawl of towers in Chinese cities, more innovative design in future residential areas is needed, where mid-rises of about 6 (and up to 8) floors can be primarily considered (as encountered in M, L, XL1 areas). Concerning density, according to this study's systematic on-site observations, the preferred building coverage to avoid both overcrowded and over-distanced residencies would be 40%-50%, as successfully encountered in the mid-rise compounds in the M, L or XL1 areas, as well as in the very few remaining work-units in the XL2 area (see Chapter 6, section 6.2.4.3). An additional, hidden wisdom is in planning mid-rises rather than high-rise buildings, that give residents the option to interact more with the environment by accessing the street level easier, thus respecting a traditional Chinese Daoist philosophy of living closer to the ground.

7.3.1.2 Importance for liveability of the historical period of construction

Agreeing with ongoing mass demolitions is unfavourable to the preservation of old buildings in China. Older buildings, however, have an important role in accommodating social diversity as well as affordable business, as encountered on the S and M segments. Therefore, along with other contemporary developments, the historical fabric should hold its own place in the Chinese city.

According to interviews, residents became used to the idea of the frequently changing urban fabric and were expecting replacements not only in the S area (which was dominated by shanties) or the M area (due to unsatisfactory facilities and living conditions); but, some residents expected demolitions in mid-rise areas built in the socialist period also (in the XL1 set, and partially in the L and XL2 sets), being convinced that taller buildings were equivalent to bigger homes, better surrounding environments and more satisfactory living standards:

"*Buildings should be taller. The living space is too small. This compound should be demolished and rebuilt with bigger homes.*" (XL1_rushan_R2).

This attitude explains residents' acceptance of ongoing demolition, further encouraged by the prospect of obtaining financial compensation from the government:

"*We are all waiting for the Government to take us out from here and put us in tall buildings [high-rises]*" (S_xicangqiao_P1).

Yet, few informants from traditional residential areas could perceive the benefits of social ties, beyond other economic prospects or space constraints:

"*This place is good because the neighbourhood itself is good. We are familiar with all the neighbours, not like in high-rises*." (S_wenmiao_R2).

Overall, older buildings were not valued either by the residents or the local administration, due to prejudicial ideas concerning the short life-span of buildings. Yet, old buildings had an important role in providing options for cheaper rents and in accommodating people of different social and economic backgrounds, as encountered on the S and M segments (and confirming the argument of Chang & Tipple, 2009). Furthermore, as the old buildings also accommodated affordable business (as seen throughout the S and M segments), they added to the diversity of services and activities on the street. Therefore, reconstructions following mass demolitions of old neighbourhoods should not be encouraged in Chinese settlements.

Moreover, the need to change the urban planning strategy in Chinese cities, called for by the Central Committee Conference on Urbanization (2015) in China (see Chi, 2015), does not mean that a new phase of city beautification programs should follow, without a contextual understanding of on-site specificities. Instead, more attention could be given to the process of restoring old buildings. Following these observations, renewal interventions in Shanghai and other Chinese cities should be carried out with more sensitivity, without having at their base the obliteration of old neighbourhoods.

7.3.1.3 Importance for liveability of human scale, transparency, enclosure, setbacks and linkage to the street

When planning for liveable streets in Shanghai, along with pragmatic indicators of physical street dimensions, high importance have the perceptual features of the street environment (the human scale, transparency, enclosure, and linkage).

As has been observed especially on the S and M segments, ensuring street environments built at human scale, with a transparency of street edges and a good sense of enclosure, can provide a sense of shelter, of being close to habitation, resulting overall in more human-friendly environments (as similarly argued, in other contexts, Ewing and Clemente, 2013).

Alternatively, by looking mainly at the quantitative indicators (informed by physical surveys, see for instance Table 6-6, page 177, Chapter 6), to ensure a comfortable, non-oppressive street environment, the tendency would be to recommend a height-to-width ratio of 1:1 or of 1.5:1, as also recommended by the Shanghai Street Design Guidelines (2016). However, as could be seen in this study, the 1:1 ratio was encountered in different portions of the S, M, XL1 and XL2 sets (see Chapter 6, section 6.2.4.1), but the overall appearance of the street environment was very different. Considering for instance the very wide roadways and very tall buildings in the XL2 set (roadways of up to 26m, buildings up to P+50), taking only the height-to-width ratio into account does not have much value in determining a positive street environment.

In the end, while setting values for quantitative indicators is needed to guide practitioners (see the recommended building heights and roadway widths in the Shanghai Street Design Guidelines, 2016), professionals must be made aware that defined street proportions can still inform differently experienced street

environments. For liveable streets in Shanghai, it is therefore recommended to consider the street environment in its entirety: formed by tangible, pragmatic features (which have been in the focus of design professionals), but with high attention to less tangible (perceptual) morphological features, which have been neglected.

A living environment at human scale, a higher frontage complexity, and a higher linkage to the street significantly affect the way that Shanghai streets are experienced by pedestrians. These qualitative features are more likely to be obtained by building closer to the street (with short setbacks) and having active ground floors.

Firstly, based on interview responses and on-site observations, residents preferred to meet in comfortable places that had human scale, where other human activities could be witnessed. In this way, the lack of liveliness on streets that display automotive or functionalist scales can be understood (such as Shangcheng Road, XL1, Pucheng Road, and Pudong South Road, XL2 set, see Figure 7-13, page 266, Figure 7-14, page 269, and Figure 7-16, page 272). Essentially, streets bordered by buildings with no setbacks, with many entrances from the street (high linkage), and having commercial ground floors which resulted in attractive frontages (such as the S, M, and partly XL1 sets), represented the positive extreme concerning the walking experience (see for instance Figure 7-5, page 253). In contrast, the mono-functional segments with large building setbacks (usually around high-rises), and with very limited commercial and human activities represented the negative extreme (especially in the XL2 set, see for instance Figure 7-14).

These differences can also be understood by comparing parallel segments within the same street sets. For instance, by examining the three segments in the XL1 set which were bordered by similar types of buildings, Shangcheng Road, a traffic-oriented segment lacking commercial ground floors, was lifeless and dull. In comparison, Qixia Road and Rushan Road, having active ground floors, were dynamic, friendly and full of life (see section 7.2.4).

Moreover, considering the XL2 segments, especially on Pudong South Road and Pucheng Road, the large building setbacks in correlation with the automotive scale of the built environment, resulted in a low sense of enclosure, while the presence of people on the street was almost unfelt. In contrast, on the narrower segment of Nanquan Road (11m), bordered mainly by buildings of medium heights built with shorter setbacks (within 5m), the pedestrian experience was significantly

different compared to the other two segments in the set, provided by the human scale of the transversal street profile (see also section 7.2.5, page 270).

Considering the existing condition of high-rise gated compounds in Shanghai, providing open-access to inner alleys would at least improve permeability and linkage to the street, thus improving the walking experience on otherwise lifeless street segments.

Inner alleys and lanes with potential to provide a higher linkage to the street have been identified within all the compounds in the S, M, L, XL1 and XL2 areas. Unfortunately, at the time of research, the alley entrances were blocked due to unverified security reasons. As observed on-site and resulting from XL2 informants especially, allowing access only to residents of each individual compound did not shorten overall distances to interest points. Although inner alleys have been planned for pedestrians to cross through superblocks, locking the alley entrances has therefore made walking uncomfortable.

Instead, allowing open access to inner alleys for all, as a response to MOHURD's directive of opening the gated communities to the street (see Guo, 2016), could be first implemented in mono-functional superblocks in the Pudong District. In addition, other secondary activities and uses could be allowed to flourish around the newly-opened entrances, and in this manner, opening the gated compounds to the public throughway could lead to streets with increased vitality. However, linking the residential communities to the public space of the street should not be done with the aim of 'Westernising' the street space while aiming for international sophistication (reinforcing arguments of Miao, 2003 and Flock, 2014), as possibilities for commerce and access of poorer social classes should not be limited. Instead, the Chinese characteristics of the space should prevail, informed by the residents' lifestyles. The image that can guide these interventions is that of traditional Chinese streets teeming with commercial and human activity.

In future planning, recommended is to build with short setbacks (on narrow segments) and to plan active ground floors for an improved walking experience. In the meantime, in remaining traditional areas (in the S and M sets), the existing lane gates can simply be unlocked, as the blocks are short and the traditional buildings closely aligned to the edge of the street, providing a good degree of enclosure, privacy, and quiet for residents. This is suitable and necessary in the S and M areas,

especially considering the high influx of visitors and tourists to the Old Town and the Former Concessions.

7.3.1.4 Impact of pavement width, street furniture and vegetation on liveable streets

The inappropriate dimension of pavements is negatively affecting the use of the street and the overall pedestrian experience. Finding balance between either too narrow or oversized pavements is necessary. In addition, street furniture and street landscaping, as opposed to pavements occupied by parking, can support pedestrian activity on Shanghai streets.

On many of the selected segments, pavement sizes were inappropriate for pedestrian circulation and for the adjacent commercial activities. On one hand, this study has identified the issue of having pavements too narrow for pedestrian needs (of 1-2m), in particular around commercial ground floors (especially on Penglai Road, S set, Xiangyang Road, M set, and Rushan Road, XL1 set). On the other hand, oversized pavements have also been identified (of 8-10m, on Pucheng Road, and on Pudong South Road, XL2 set) which, as Montgomery (1998) highlighted, can also pose issues concerning the overall scale of the built environment.

Given these conditions, while for traditional segments (M and S streets) possibilities for widening pavements are not many, on functionalist segments (such as XL1 streets), pavements need to be widened by taking land from the too-generous space given to cars (at least 1m). On very narrow traditional segments (S and M streets) having footpaths and vehicular ways at the same level can be experimented[73], as the current raised borders were not convenient to pedestrians, who as a result chose to walk on the roadway instead.

Yet, on several parts of XL2 streets, pavements (of 8-10m) were oversized, especially in front of office or hotel buildings (on Pudong South Road), as well as in front of high-class compounds (on Pucheng Road). The oversized pavements with restricted access remained unused and did not have a positive effect on the overall environment of the street, often being occupied by parked vehicles (see Chapter 6, Figure 6-43, picture ‘c’, page 238). These overly-wide pavements increased the width of transversal profiles, while vehicular movement remained dominant. Instead,

[73] In addition, old water canals could be restored along traditional streets in Shanghai (see also Chow, 2014), which would add vitality, place identity and improve microclimate.

such pavements should accommodate more vegetation, seating and relaxing areas. Nevertheless, on XL2 streets (especially on Pudong South Road), closer attention needs to be paid to bus stops, for which not enough space was allotted (see Chapter 6, Figure 6-43, picture ‘f’ and ‘g’). Specific widths will have to be calculated based on the actual flow of travellers, besides having improved bus station designs in relation to traffic flows, as the Shanghai Street Design Guidelines (2016) recommended. Similarly, for L segments, although the pavement widths have been better planned, those parts wider than 4m-5m require additional trees and street furniture. At last, the fact that residents have been seen pushing wheelchairs on roadways (see Chapter 6, Figure 6-10, page 186) clearly indicates the need for improved pavement conditions.

Furthermore, not enough public furniture was provided for the amount of activities taking place on most of the streets, and pedestrians had to find improvised seating options (see for instance Figure 6-39, picture ‘d’, ‘e’, page 232). Moreover, missing pedestrian-oriented lighting on pavements (see Chapter 6, section 6.2.3.3) negatively affected liveability, primarily through affecting residents’ perception of safety (as for instance a female respondent mentioned on Pucheng Road, XL2 set). Based on micro-scale street designs adapted to the activities of the residents, new pedestrian lighting and street furniture need to be provided on almost all residential streets. Trees and street greening are also recommended, as a tool for making the pedestrian experience more comfortable in Shanghai, because greening the street provides necessary shade during the summer for both pedestrians and cyclists, and improves the microclimate of the street.

Finally, for most of the street segments, the issue of parked vehicles bothered informants more than the actual volume of traffic passing by, due to parked vehicles occupying the street space:

“Clear all the motorbikes, bikes and other things occupying the walking space” (XL1_qixia_R6).

Similarly, bike-sharing programs were intensely criticised for occupying the pavements (confirming the recent press-release articles of Cendrowski, 2017, and Jing, 2017). The major issue observed was that an increasing number of bike brands kept entering the market, without adapting the number of bikes to actual demand and without receiving the necessary infrastructure support for parking. In this way, parked bikes became obstacles, especially on pavements (see for instance Figure

6-35, picture ‘d’, ‘e’, page 227, Chapter 6). Finding innovative storage solutions and providing smart off-street parking are thus matters of urgency, after which parking regulations can be better reinforced. Finally, the space currently occupied by parked vehicles can be turned into green spaces, or into spaces designated for commercial and social purposes.

7.3.2 Automotive traffic in relation to liveable streets and its effect on social relations

7.3.2.1 Importance of roadway width and roadway space distribution

Redistributing the space of overly wide roadways to accommodate better non-motorized transport can balance mobility needs on residential streets in Shanghai.

On most of the selected segments, a much higher priority has been given to motorised circulation, with a high number of car lanes provided compared to narrow cycling ways (especially on M and XL1 segments), as well as by having roadways which are better maintained than the pedestrian ways (for instance on S segments, but also on some of the M, L, XL1 or XL2 segments).

Nevertheless, some respondents expressed expectations for wider streets, not only on the S segments that were historically very narrow (4m-7m), but even on wide roadways (of 11-15m) in the XL1 and XL2 sets: “*Make the road wider. It’s needed a parking lot... [there should be] less cars*” (Sc1). However, the understood need behind residents’ complaints about streets being too narrow is for better transport connections and more comfortable walking conditions.

Even more, finding solutions for redistributing the space of oversized roadways is necessary (on Liyuan Road, Xietu Road, L set, Pudong South Road, Pucheng Road, XL2 set) because, as it has been demonstrated in previous studies, wider roads attract further more cars, instead of releasing congestion (see Cervero, 2003), while overly wide roadways caused congestion to un-widened arteries (seen in the case of Nanquan Road, XL2 set, and Shaanxi South Road, M set).

A significant improvement would be to turn some of the space currently part of the oversized roadways into strips with street trees, as well as giving more space to pedestrians and non-motorised transport by turning the wide arteries into boulevards (which proved to be more liveable in some contexts, see Bosselmann et

al., 1999). Nevertheless, on Shanghai streets, automobile travel will still have to be accommodated, as too limited auto access also brings inconvenience to residents and business owners (for instance on Xicangqiao Street, S set). Yet, car travel should not be allowed to dominate other modes of circulation.

'Shared streets' and 'complete streets' can be considered as part of future street planning in Shanghai, especially on segments bordered by commercial facilities, where more human activities take place and pedestrians need to be prioritised.

Taking the example of the S streets, these were in principle what in Europe and North America was meant to be achieved through the concept of 'shared streets'. The S segments were however a result of history, with interrupted pavements and street dimensions based on the width of carts and carriages. Nevertheless, the narrow segments automatically restricted vehicular speeds, and sharing the street space therefore took place naturally, without posing any traffic safety issues, indicating the possible functionality of 'shared streets' in the Chinese context. Furthermore, the fact that people walked on roadways alongside vehicles on other streets that had either lower traffic volumes (on Jiashan Road, M set; Mengzi West Road, L set; Qixia Road, XL1 set), or higher traffic volumes (see Rushan Road, XL1 set, Pudong South Road, XL2 set) – indicates the need for 'complete streets' in the Chinese context, that is where different modes of transport are equally accommodated, providing appropriate conditions for both motorized and non-motorized circulation.

7.3.2.2 Importance of narrow roadways, traffic composition and pedestrian crossings for liveable streets

Narrow roadways in addition to more diverse, non-monotonous street environments, and a higher number of pedestrian crossings are main elements that can improve safety from traffic in Shanghai.

Firstly, a need for more alertness on roadways results from the fact that accidents have occurred during moments of only slight disturbance in uniform traffic conditions (on Shangcheng Road, XL1 set, on Xietu Road, L set, see Chapter 6, section 6.5.1.1). According to on-site observations, narrower roadways might be safer, as these provided more opportunities for direct eye contact and more awareness of the presence of other traffic participants, despite having cyclists or

pedestrians not respecting the traffic rules (on the M segments for instance). Furthermore, shorter blocks and intersections with obligatory turning automatically restrict the speed of vehicles (for instance speeds lower than 40km/h were estimated on S and M streets, but also on Mengzi West Road, L set, and Qixia Road, XL1 set). In addition, more diverse (that is, non-monotonous) street environments appear to increase driver alertness (as evidenced from S and M segments, and as previously argued Dumbaugh, 2005, and Cervero, 2003; 2009). Consequently, planning gated communities on superblocks should be limited, not only because of the inconvenience caused to pedestrians due to long distances between intersections, but to obtain increased traffic calming and traffic safety on shorter blocks.

Furthermore, although most of the respondents considered the selected streets as safe or very safe from traffic (see Chapter 5, section 5.3.2.5), few older respondents complained about vehicular traffic when attempting to cross the street. This happened mostly on segments with medium or high traffic volumes that were not too wide, but where pedestrians attempted to cross in undesignated places (emerging especially on segments of about 10m wide with over 900-1000 PCE/h, including Xiangyang Road, Shaanxi South Road, M set; Nanquan Road, XL2 set):

"I am old. And a lot of vehicles are on this road so I don't feel safe" (Xy8).

This indicates possible safety concerns for certain age groups (mostly over 65 years old, but also for children); nevertheless, safety from traffic also depends on pedestrian behaviour, especially considering those attempting to cross the street randomly:

"*People crossing this street [randomly]...can bring traffic safety problems …otherwise, it is safe*" (XL1_rushan_R1).

It emerged that having separating fences between roadways and pavements represents a provisional traffic safety solution, as the real cause of inconvenient pedestrian connections (because of which people randomly crossed the street) is not resolved. Therefore, a higher number of convenient crossings and prioritising pedestrians is needed to ensure a higher safety from traffic for residents.

Many of the circulation conflicts can be alleviated through improved consideration of the needs of cyclists in Shanghai. In addition, compared to motorized traffic, cyclists provided a human presence on streets, and therefore cyclists should have priority over cars.

While in many countries cycling is encouraged through policies and new street designs, in the Chinese context, insufficient consideration is given to the numerous cyclists.

In Shanghai, providing cycle tracks on both roadway directions is of high importance for liveable streets. Otherwise, with only one-way tracks, cyclists would ride against the main traffic or on the pavement (as seen especially on Shaanxi South Road, M set, and Pudong South Road, XL2 set), fact which generated circulation conflicts. Furthermore, compared to demand, the space given to cycles and electric bikes (e-bikes) was often undersized (on Nanquan Road, XL2 set; Xiangyang Road, Shaanxi South Road, M set). Moreover, by marginalising cyclists, often the conflict between cars and bikes was turned into a conflict between bikes and pedestrians, as many two-wheelers opted to take a shortcut by riding on the pavement (see Figure 7-9). This offers a partial explanation of why in Shanghai the numerous cyclists were often perceived as more problematic than the high number of cars, as highlighted by Pucher et al. (2007), and as resulting from interviews with professionals and residents.

However, a different feeling was expressed where higher numbers of two-wheelers were using the street. This happened because of their human presence in comparison to cars, buses and trucks, which were more impersonal (as encountered, for instance, on Nanquan Road, XL2 set, where two-wheelers represented more than half of the traffic volumes of 990.8 PCE/h, see Figure 7-15, page 270, Chapter 6). By adjusting traffic rules to better accommodate the needs of cyclists, the number of conflicts on the streets would be limited. What is more, cycling should be prioritised as a mode of transportation, because it is especially suitable for the central areas in Shanghai, given the high population densities. For this reason, despite the complaints of some informants and of the municipality (see Jing, 2017) about the numerous bikes parked, public bike-sharing should be further encouraged on the Shanghai streets, after innovative parking solutions are identified. It is hard to imagine how much worse road congestion might be if all those riding bikes chose to drive cars instead.

This research thus adds that, besides walking, cycling should also be prioritised and encouraged. When traffic rules will be adjusted to better accommodate the needs of bikers, for instance with continuous bicycle lanes, as proposed by the Shanghai Street Design Guidelines (2016), footpaths will feel safer for pedestrians, who will be able to use them without being bothered by passing e-bikes. In this way, many of the current road conflicts could be resolved. Therefore, only adopting a better traffic control (as recommended for instance by Qin et al., 2003) is not a long-term solution. The more dedicated consideration of every traffic participant is more important than reinforcing stricter traffic rules.

7.3.2.3 Influence of vehicular traffic on social relations on the street

High traffic volumes represented one of the physical factors affecting the formation of social relations on the street. However, the roadway dimensions, crossing possibilities, the organisation of housing in enclosed compounds, as well as other socio-psychological factors, also affected social interaction.

Having high volumes of traffic (with high speeds) affected social interaction from one side of a street to the other, because the street was perceived as a physical and psychological barrier by some residents (for example on high-traffic segments in the L, XL1 and XL2 sets).

"*(…) So many cars pass especially in the morning and afternoon… there will be traffic jam and hard for people to cross the street*" (XL1_rushan_R5).

In this regard, motorized traffic restrained people from crossing (an aspect which also resulted from the study of Appleyard, 1981, as well as of Qin et al. 2003). Nevertheless, this was especially true on very wide roadways (of over 15-20m wide) accommodating high volumes (of over 1500 PCE/h) of through traffic, for instance on Xietu Road, L set, Shangcheng Road, XL1 set and Pudong South Road, XL2 set (see for instance Figure 7-16). However, on narrower segments (for instance on Nanquan Road, of 11m), despite relatively high traffic volumes (of 990,8 PCE/h), crossing the street was not an issue, while friendships could form easily on both sides of the street (see Appendix D3, Figure 30, page 493).

Nevertheless, additionally considering the discomfort of vulnerable groups (elderly and children), the argument of Appleyard (1981) that higher traffic volumes might affect liveability and social interaction is confirmed by this research. However, in the Chinese context, the very wide roadways are a primary reinforcing factor

affecting social interaction and liveability. In the end, social interaction with those on the other side of the street depended mainly on whether pedestrians could cross the street effortlessly, and crossing the street was generally facilitated on narrower roadways (as opposed to wide roadways with medium or high traffic volumes).

Another factor affecting social interaction on streets and the home territory (the area where residents felt at home) was represented by the housing organisation into gated compounds. This partly restricted interaction to the compound area (as respondents mentioned on Qixia Road, XL1 set, a segment with low traffic volumes), reinforcing the findings of Qin et al. (2003). Interaction restricted to the compound area was even more obvious when the two sides of the street were bordered by compounds of very different characters and were inhabited by differentiated social classes (for instance on Mengzi West Road, L set, and on Pucheng Road, XL2 set). However, on the M segments, having closer distances, narrower streets and much shorter blocks, could alleviate the obstructive effect of the enclosed compounds on forming social relations on the street (for instance on Jiashan Road, M set).

Another factor that influenced the formation of social relations on the street was the length of time residents had lived in one place. Social ties were stronger when neighbours had lived near each other for a longer time (as evidenced especially on the S and M segments). However, ongoing relocations, which displaced a large number of people at one time, affected friendship groups on the street:

"*Old neighbours moved to other places because of the renovation of this street*" (XL2_pucheng_R3).

In addition, the formation of social relations also depended on the sociability of each person. The effect of these subjective factors (the length of living in a place and a person's sociability) on the formation of social relations on the street was evident in the fact that, despite living in the same compound, some respondents had no friends, while others mentioned dozens of people as their friends and acquaintances (for instance on Liyuan Road, see Appendix D3, page 466).

It can overall be deduced that different factors contribute in different ways to allowing or impeding the formation of social relations on the street, and that traffic is, in essence, one of the factors. However, as resulted from several cases in this study (such as Shaanxi South Road, M set; Rushan Road, XL1 set; Nanquan Road, XL2 set), the effect of higher traffic volumes on the pedestrian experience and on

social relations can be counterbalanced by a higher linkage to the street (by making the enclosed compounds more permeable), by having narrower roadways and providing more possibilities for crossing the street, besides limiting the massive relocations of people.

7.3.3 Physical facilities for living, land-use and economic activity affecting liveable streets

7.3.3.1 Importance for liveability of services, amenities and businesses on the street

Local small-scale businesses, including informal vendors, facilitate the animation of residential streets and the formation of social networks, providing a reason for people to linger on the streets.

The small-scale mix of uses found especially on the S and M segments attracted a large number of people and activities to the streets. The small restaurants, the fruit and vegetable shops, the ambulant vendors on the street, including bike and shoes repair stalls, generated social capital. Particularly concerning ambulant vendors, what was beneficial about the shoe-repairing, bike-repairing and key-making stalls, as well as newspaper and lottery kiosks, was that they provided a reason for residents to go out and linger on the street, as vendors were present all day long. This has been deduced from on-site observations, not only on segments with multiple shops (on Qixia Road, XL1 set; Nanquan Road, XL2 set), but also on otherwise less animated segments such as Xietu Road (L set) or Pucheng Road (XL2 set, see Figure 6-39, picture ‘k’, page 232, Chapter 6). As Whyte (1980:2016) similarly argued, informal vendors and newspaper kiosks were some of the most attractive spots for people on the street. Nevertheless, in Shanghai, the number and the scale at which informal vending and small-scale commercial activities took place was exponentially higher compared to Western contexts (see especially S and M segments), leading therefore to a much higher animation on streets in any place where ambulant and small-scale vending was allowed.

Reconstructions that blindly adopt the norms of a high-class city often bring improvements to living standards, but the overall living experience becomes less lively. In addition, reconstructions negatively affect the small-scale mixed-use and the local economic activities on the street, as evidenced on L and XL2 segments.

The disappearance of small-scale mix of uses and affordable shops surfaced on several streets that have undergone reconstruction, road widening or other major infrastructure projects (such as Mengzi West Road, L set; Qixia Road, XL1 set; and Pucheng Road, XL2 set). Some segments that were initially teeming with commercial activity experienced a very low percentage of active ground floors after compounds were rebuilt (resulting in no active frontage on the side of high-class compounds on Mengzi West Road, L set and Pucheng Road, XL2 set):

"*This street in the old time was full of market shops and many people used to come to this place for shopping… Ancient furniture shops…Now there is no one on the other side of the road …. Now the street has become changed. Before it was better*." (L_mengzi_R1).

This happened because in rebuilt high-class compounds, limited ground-floor space was designated for commerce, which, along with growing rents, made it unprofitable to conduct micro-business. Furthermore, on other recently redeveloped segments (for instance on Pudong South Road, XL2 set, and on Xietu Road, L set), although some mixed-use was encountered across residential blocks, the non-residential uses (hotels, offices and banks) were commonly organised in buildings with large footprints and did not add much to the overall vitality of the streets.

Along with the tendency for large-scale commercialisation, a high risk of losing the traditional vibrancy of the streets, the diversity and liveliness, is encountered.

Many affordable and informal businesses were flexible concerning their location, opening hours (see Chapter 6, section 6.4.1) and their offer, responding to market demand. More than this, they reflected diversity and creativity (as similarly found Kim, 2012 in the context of Vietnam). In contrast, the specialised stores serving the higher classes, located mainly on the L and XL2 segments were more exclusive and therefore empty of customers most of the time (for instance on Pucheng Road, on Pudong South Road, XL2 set, see Figure 6-43, picture 'a', page 238, on Xietu Road, L set, see Figure 6-31, picture 'h', page 221, Chapter 6).

In addition, some of the small-scale shops were forced to close by the government, while ambulant vending was also becoming widely erased, due to missing business licences and non-payment of city taxes. This happened despite the convenience of these activities to residents (see for instance the complains about the removed breakfast shops on Xiangyang Road, M set, Appendix D3, page 451).

This recent phenomenon of erasing informal markets, including street food and other local products, is widespread not only in China, but also in other South-East Asian countries. As Santoso (2016) stated, the new Asian city promotes and allows the existence of 'public space' only if it is related to commercial activities that can bring marked profits or, in the case of Shanghai, if it conforms to the new norms of the higher-class, global city.

Nevertheless, compared to large-scale commercialization in shopping centres, one advantage of all the stores placed at ground floors, regardless of the social classes targeted, was that they provided a certain transparency to frontages, in contrast to the blank façades of the recently-walled-up shops (as seen on Qixia Road, XL1 set) or to residential buildings with large setback (as seen on Pucheng Road, XL2 set). Another advantage of having stores with different economic profiles was represented by the diversity of goods. In addition, in the Chinese context, this research found it to be advantageous that, even though some segments had less commercial activity, the parallel and intersecting segments compensated in terms of services and products offered at wide-ranging prices and quality (as encountered especially in the L set, but also in the XL1 sets and to a certain extent in the XL2 set).

Nevertheless, signs of large-scale commercialisation have been identified especially in Pudong New Area (around the XL2 set), while gentrification has been identified in the central areas of the city, along S, M and L segments. This indicates the weakening of the local economy, as bigger and international brands replace local shops (for instance on Xietu Road, L set). Yet, when small-scale commercial activities disappear, the street space often remains unused and empty.

If this tendency of privatising public space continues, the policy of opening gated communities to the street brings with it the danger of increased social segregation (even more than currently experienced around the high-end compounds), where only certain categories of people are welcomed to use the street space, conforming to the vision of Shanghai as a sophisticated metropolis.

More small businesses are flourishing in areas with traditional buildings or buildings from the early socialist period due to: morphological features of street fronts; accessibility and connectivity; density of population and influx of passers-by; as well as visibility and clustering of business.

Having buildings aligned to the street facilitates direct communication between the ground-floor space and people passing by the street, thus facilitating an establishment of commerce (seen on the S and M segments but also on Rushan Road and Qixia Road in the XL1 set). In addition, the S and M segments had the advantage of: proximity to the city centre, high connectivity through shorter blocks and walkable distances, a high density of inhabitants and a large number of visitors, affordability, and a multitude of stores with a multitude of products. A notable issue is that, among the three S streets, only Xicangqiao Street had lower accessibility and was thereby less favourable for business.

The influence of accessibility on business activities can be understood by comparing some of the segments in the XL1 and L sets. For example, segments with partially restricted accessibility due to tunnels or highway ramps (Qixia Road, XL1 set; Mengzi West Road, L set) had less dynamic business environments compared to parallel segments with similar morphological features (Rushan Road, XL1 set; Liyuan Road, L set). However, it was at the same time crucial for the street not to be transformed into a traffic corridor (such as Shangcheng Road, XL1 set; Pudong South Road, XL2 set), which lead to almost total elimination of small-scale commerce.

On the L segments, the small-scale businesses were neither successful nor unsuccessful, as they were negatively affected by recent reconstruction but had the advantage of being situated in proximity to the city centre. One reason why business activities did not flourish in the newer or reconstructed areas is because of the spatial organisation of residential buildings on mono-functional blocks, built further away from the street (usually more than 5m, in the L and XL2 sets). Furthermore, the segments of exaggerated length (of over 500m, in the XL2 set) were not favourable to micro-business either, possibly because they did not have an adequate pedestrian flow to support commerce on the entire frontage. One example of this was the narrower but lengthy segment (580m) of Nanquan Road, XL2 set, which had flourishing businesses at the intersections but very limited commercial activity in the middle of the segment. The existence of areas where commerce is not flourishing (in

the context of Shanghai with its high population density) demonstrates the negative effects that the contemporary style of development on superblocks can have on micro-economy as well as on street life.

Furthermore, in order for small businesses to thrive, it is important to have good visibility from the street. For example, parked cars along the street results in obstructed views of storefronts reducing the number of customers and affecting the survival of small stores over the long term:

"*The biggest problem is that no rule directs people how to park bikes or delivery cars on this street. So when they park in front of my workshop it is inconvenient"* (S_xicangqiao_R1).

Another threat to small shops on the streets is growing internet sales, which render monthly rents and business licences a financial burden in Shanghai. However, the wide use of online services using well-developed e-commerce platforms with fast and cheap delivery help other types of businesses thrive (for example, catering services and household stores).

It overall emerged that unfavourable for the establishment of micro-businesses are: reconstructions; limited accessibility on one hand, but also turning the street into a traffic corridor on the other hand, along with neglected pedestrian needs; segments too lengthy to walk along; large setbacks; but also, to some extent, the existence of e-commerce.

With appropriate commercial strategies of clustering and connecting streets with small-scale business, along with consideration of local culture, the success of small commerce can be revived in Shanghai, and liveliness increased.

Opening restaurants, tea shops, snack shops and other food-related stores is culturally opportune in Shanghai, despite recorded threats to small stores due to reconstructions, large-scale commerce or e-commerce. Besides the fact that food is an essential part of the local culture (see Greenspan, 2017; Lu & Fine, 1995), resident informants also indicated dining out to be one of the ways of spending free time that they most appreciated.

Although large-scale commercial developments are easier to build and control, and might be more appealing to the current political system in China, any such spaces resembling warehouses or shopping malls with opaque façades and without active ground floors should only be built beyond the Inner Ring Road in

Shanghai. At the same time, as connecting and clustering smaller-scale businesses is more conducive for success and attracts more customers (as seen on the S and M segments, in comparison to the L segments, for instance), identifying strategies to connect streets with commercial potential is necessary. Grouping commercial facilities in central areas could mean obtaining higher efficiency in shopping time and would offer a greater variety of stores within walkable distances. Such grouping of commercial facilities could however be accomplished with small-scale commercial spaces developed across several connecting streets[74].

In addition, the concept of the market should not be overlooked, as markets have always been a major reason throughout history why human settlements were established. More than this, the market can be seen as a means for catalysing socio-economic exchange, as proximity to markets was very important for both the poor and the rich classes surveyed, envisioning the ideal street "*with many stores, with market and quiet*" (M_xiangyang_R3). Therefore, with proper facilities ensured and higher sanitary standards adopted, markets can become attractive points in the city, not only for locals but for visitors as well[75].

Nevertheless, the intention to offer financial support in the form of loans, as announced by the Chinese government (see Zhang Y., 2016 for English.gov.cn), might not be sufficient to attract micro-businesses. As many shops have been forcefully closed due to missing or out-dated business licences, a more attractive incentive might include lowering the taxes charged under a certain declared income. Furthermore, in order to aid small-scale business (encountered especially in the S, M, and XL1 sets, and less in the L or XL2 sets), lowering the rents to commercial spaces can be considered. Restoring older buildings can therefore be regarded as a strategy for providing accessible rentals to small-scale businesses and start-ups. In addition, more flexibility can be directed towards installing temporary retail stalls, along with providing a legal market space for ambulant vendors (as also suggested by one of the Shanghai academics interviewed).

Furthermore, the Chinese government can offer knowledge and infrastructural support for entrepreneurship, for instance to secure business licences,

[74] An example is Huaihai Middle Road in Shanghai, a successful mixed-use area, also appreciated by the young generation (see the response of XL2_nanquan_R4, Appendix D3, page 488).

[75] See the example of Santa Catarina market in Barcelona, redesigned by architects Miralles and Tagliabue.

but also to discourage dumping of refuse in public spaces (encountered on the S and M segments), and to improve sanitation in food stores.

Easy access to facilities and services, including shops, restaurants and educational facilities, is vital for liveability from the residents' viewpoint. Increasing access to such services and facilities is needed in newer-built areas on the L and XL2 segments, a result of detailed on-site surveying.

Despite the trend of moving to areas of Pudong with lower densities, more generous green spaces and higher standards of living, the city centre, although congested, remained one of the most desirable locations in which to live, because of high access to commercial and educational facilities. In this manner, many resident informants living in poor neighbourhoods mentioned relocation concerns, and how they hoped to still live in the city centre after reconstructions: "*We can accept anything the government will give us…but we don't want to live far away…we are all used to the city centre*" (S_Xicangqiao_R4).

Furthermore, several informants living in the Pudong District (on the XL1 or XL2 streets) mentioned many advantages of living across the Huangpu River, including improved air quality, but still referred to the convenience of being able to travel to Puxi, which had a higher amount of services. At the same time, inconvenient access to commercial facilities and to services resulted in more frequent travel to other areas, leaving the space of the streets with almost no human activity (for instance on Pucheng Road, XL2 set).

Nevertheless, streets with contrasting amounts of services and commerce have been encountered in areas with similar accessibility features. In this regard, although the arguments of Shen and Karimi (2017) for unsatisfactory 'spatial convenience' in Pudong have been confirmed in the XL2 set, in the earlier-built areas in Pudong, such as along the XL1 set, 'spatial convenience' was not problematic, given the wide variety of retail facilities provided at ground floors. At the same time, arguments of Shen and Karimi (2017) concerning the need for spatial privacy in Puxi have been partially confirmed on the S and M areas, where, due to high building coverage, the residents added opaque curtains to house doors and windows that opened directly on to the street. However, as the Chinese are traditionally used to living in close proximity to one another, the respondents did not particularly complain about privacy. As evidence, the neighbours were not reticent to

sun-dry their underwear on pavements, gates or within their compound. On the other hand, in the L area, also located in Puxi, the privacy issues were minimal, not having overcrowded areas; however, along with insertion of contemporary buildings, 'spatial convenience' was slowly becoming affected. This indicates a higher diversity of contexts and less generalizable results in Chinese settlements by using only macroscale geographical analyses carried out at the city level (as done in the study of Shen & Karimi, 2017).

To address the issues of either convenience of access to services and amenities or privacy in the use of basic facilities, any intervention needs to be informed by detailed on-site surveying and be guided by the importance residents gave to the proximity to educational, commercial and leisure amenities (good schools and kindergartens, shops, restaurants), as well as to green and open spaces.

In order to avoid inconvenient access to commercial facilities, but also to avoid over-crowded residential streets due to intense commercial activity, the amount of ground floors occupied by small business can be a guiding strategy for commercial development.

Apart from the downside of having weak commercial activity (for instance on Shangcheng Road, XL1 set, Pucheng Road, XL2 set), this study has also identified the crowded nature of narrow streets and pavements, bordered by very intense commercial functions next to living areas (in the past on Wenmiao Road, S set; on Penglai Road, S set; at the time of the study on Xiangyang Road, M set; on Rushan Road, XL1 set, see Figure 6-22, page 207, Figure 6-35, page 227).

For an illustrative quantification of how an amount of commercial ground floors attracted a higher or a lower number of customers, we can consider the M and XL1 sets, where segments with more than 80% of building frontages occupied by small businesses (Xiangyang Road, M set; Rushan Road, XL1 set) have a very dynamic shopping environment and street life; segments with about 60% of the frontages occupied by small businesses (Jiashan Road, M set; Qixia Road, XL1 set) ensured quieter living along with vibrant commercial activity; though, less than 20% of active ground floors resulted in pedestrians rarely passing by the street (see Shangcheng Road, XL1 set, but also Pucheng Road, XL2 set). This quantitative approximation of commercial ground floors having different effects on street life can

thus be used to find an appropriate disposition and proportion of commercial spaces in relation to the living function and width of pavement.

7.3.3.2 Importance of green and open spaces nearby residential streets

Having empty, unused green and open spaces along residential streets revealed non-functional spaces. Main causes which need to be addressed are the over-control of activities in public spaces, and the uninspired public space design.

In the S and M areas (with high building density), green spaces were, accordingly, cramped, consisting of only 10-15% green coverage (see Figure 6-8, page 180, Chapter 6). Residents living in these areas dreamed of living in high-rise compounds with higher green coverage. However, on the XL2 segments, despite generous green spaces within modern-built residential compounds, few residents were observed spending time outside, due to modern lifestyles which feature spending less time in the community. In the meantime, residents living in dense compounds had no access to green spaces in modern-built compounds.

Another cause for the underuse of open spaces was the over-control of activities, observed not only within high-class compounds (in the form of inaccessibility for non-residents) but also in the open spaces along the streets (predominantly in the XL2 area, but also in the L area). One explanation could be that frequently in the Chinese context, due to high population densities as well as due to political beliefs, street design is realised in such manner as to keep crowds away from public spaces (as similarly argued Friedmann, 2007), at times exposing monumentality[76] (in front of the high-end compounds or hotels on Pucheng Road, Pudong South Road, XL2 set), other times being bland (for instance in front of banks on Xietu Road, L set).

Besides impersonal designs, other reasons for which recently designed public spaces remained unused were related to the overly long distances to walk between intersections (over 500m), and street environments lacking human scale. It overall resulted in having a low number of passers-by compared to the pavements' capacity (approximately 5-10 people passing per minute, although most often around intersections or bus stops, on pavements of up to 8-10m wide, on Pucheng Road, Pudong South Road, XL2 set).

[76] One obvious example is People's Square in Shanghai.

Surprisingly however, examples of unused green spaces and pocket squares have also been encountered on Rushan Road (XL1 set) and Nanquan Road (XL2 set), even though portions of the same streets were becoming crowded. This confirms what other authors argued (Donald, 2015; Wang, Zhang et al., 2013), namely, that beyond adding square metres of open space per person, equal importance has the way open spaces are designed. It emerged an uninspired open space design along the selected streets, as similarly argued Miao (2014) in other Chinese contexts. Moreover, the way some public spaces were designed on recently modernised segments (on Xietu Road, L set; on Pucheng Road, Pudong South Road, Nanquan Road, XL2 set) confirmed the intention of the municipal administration for using the public space to demonstrate 'international sophistication' (as similarly argued Flock, 2014), fact which was, however, at the cost of losing authenticity. Nevertheless, fortunate is that Chinese residents are resourceful and, where needed, they adapted the available spaces to their activity needs by bringing out chairs, tables, light sources, music and sometimes plants (see Chapter 6, section 6.6.2.2). This usually happened on wide sections of pavements with unrestricted access, especially for activities such as square dancing and playing board games (see Figure 6-41, pictures 'a', 'e', page 235). Overall, much can be relearned from traditional Chinese gardens, which feature both intimate and inclusive places within the same area, offering the possibility of exploring and discovering new spots at every turn. Traditional elements such as courtyard and walls, as similarly argued Miao (2014), can especially be used in open space designs.

Furthermore, the top-down approach which has often resulted in impersonal open spaces (reinforcing the critique of Miao, 2014), can further be complemented by involving communities in the design. As revealed through this research, many people preferred to relax somewhere close to their home or next to shops, somewhere to see and meet other people; often, the most convenient place for doing this was the street (see section 5.3.2.4, Chapter 5). Therefore, along with more lush street greenery (see also section 7.3.1.4), other open spaces accessible to all categories of users should also be planned along the street, a need understood from some of the informants' comments:

"*(…) for us, the older people there is nothing interesting… no space is established to chat with our friends, we just chat here at the gate*." (XL1_qixia_R3).

Overall, considering that green spaces represented one of the most important amenities for inhabitants and that Shanghai has a high population density, with limited green coverage in the inner city, a better use of open spaces needs to be made through more inspired designs.

7.3.4 Socio-demographic and socio-psychological aspects affecting liveability at the level of the streets

7.3.4.1 Role for liveability of street distinctiveness and cultural identity

Although modern high-rise compounds are sometimes associated with high social status, traditional residential areas showcase cultural identity. If elements of cultural identity are visible on residential streets, a greater sense of place is conveyed.

Several respondents, either young or old, belonging to middle or lower social classes aspired to live in 'modern' high-rise buildings in gated compounds, associated with a higher social status:

"*I want the district closed (…) with larger distances between buildings. The area should be rebuilt. These buildings are too old for living for the young"* (M_shaanxi_R3).

However, compared to modernized areas, more identity and meaning was accumulated on the older streets (confirming the theory of Carmona and Tiesdell, 2007) in the S and M areas, because of the distinctiveness of street fronts (see section 6.7.1.1, Chapter 6). Furthermore, along with special vegetation elements (such as plane trees or luxuriant vegetation) or with a favourable location in the city, sites with historical-cultural significance and buildings with special architectural features were reasons of pride for some residents. In this manner, if traditional housing would be built with improved facilities while offering better living conditions, it would be appreciated by residents and also associated with a respectable 'status'. This would counteract the tendency to glorify only the contemporary high-end gated communities, in 'foreign style', which although receive high development budgets (such as Shimao Riviera Garden on Pucheng Road, XL2 set), might not be, after all, the most suitable for traditional Chinese living. The contemporary high-end communities in 'foreign style' are in contrast with *lilong* houses, for which close consideration to the traditional Chinese lifestyle has been given (as argued Zhang, L., 2016), although they have been built during times of Foreign Concession (see also

Chapter 3, sections 3.3.1, 3.3.2). Overall, incorporating elements of local culture in residential developments is of high importance (as resulted from interviews with both residents and Shanghai professionals). Too great a degree of disconnection from the traditional culture when adopting contemporary planning principles can result in unsuccessful spaces, used less frequently by residents while the Chinese identity gets lost. These findings reinforce the opinions of Greenspan (2014) and of Ma (2007).

Furthermore, elements with unusual distinctiveness (such as clothes hung from balconies), although in apparent disorder, were actually signs of life that increased the sense of place and cultural identity, as similarly argued Montgomery (1998). In this regard, while some elements of disorder such as refuse or anything that impedes pedestrian circulation needs to be discouraged, the display of goods in front of shops can be allowed under guidance, reflecting part of Chinese culture.

7.3.4.2 Impact of street space use on liveliness and safety in living

Despite there having been no active public participation in the design process, the appropriation of space takes place naturally on Shanghai streets, if given enough flexibility in the use of street and compound space.

Along with the government control over street space, residents had a relatively low degree of involvement with the development of public spaces:

"If this street has any problem, there's nothing to do about it. This street belongs to the government." (L_mengzi_R3).

Many residents chose not to consider potential improvements to streets, leaving this responsibility entirely to the government, acknowledging having no power in this regard:

"*What I say is not useful, because this area will be rebuilt*" (S_wenmiao_P5).

This can be seen as disengagement on the residents' part or as indoctrination regarding the power of the state; however, it can also be seen as a choice to remain untroubled with matters able to be handled by the delegated authority. As an example, some respondents mentioned how their lives did not relate much with the street, being concerned only with their personal activities:

"*I have never thought about what is going on with the street, I am only thinking about my doing [my own actions]*" (XL1_rushan_P1).

Nevertheless, some informants expressed a judgement about the space of the street, and, in few rebuilt compounds, some residents spoke of their satisfaction when the local government took their needs into consideration (in middle-class compounds on Mengzi West Road, M set, and Pudong South Road, XL2 set). Consequently, encouraging public participation in China would be advantageous to ensuring a better response to people's needs, an aspect which has also been highlighted by Du et al. (2012) and Zhao (2007). Nevertheless, regardless of their level of involvement in the planning process, the residents were resourceful and adapted the surrounding environment to their needs, as long as overly strict rules concerning the use of the surrounding space were not enforced (see the S and M streets in comparison to the over-controlled street space around high-class compounds bordering L or XL2 segments). Furthermore, if public participation is incorporated into future design plans, it should not be regarded solely as a bureaucratic procedure. Instead, it is recommended either to ensure public participation by actively involving residents and finding out the underlying needs of the community through interviews and discussion, or to give residents enough flexibility to enable them to make use of the surrounding space according to their own needs.

Informal groups of activities keep the public space alive and give meaning to it, while a sense of belonging is compromised when access to open spaces is restricted. Increased social inclusion on residential streets in Shanghai can be fostered through an all-embracing consideration of different social classes and by providing unrestricted access to open spaces.

An obvious difference emerged between traditional S and M segments, where merchandise and activities were spilling over into the public space, and street life was flourishing, in comparison to streets bordered by newer-developed compounds in the L and XL2 sets with restricted access to surrounding areas. On the L and XL2 streets, with the clearly demarcated private and public domains, either because of physical barriers, or having pavements with restricted uses, the resulting street space was underused and dull (on Xietu Road, Mengzi west Road, L set; Pudong South Road, Pucheng Road, XL2 set; see for instance Figure 7-14, page 269). This observation confirms the warnings of Sivam and Karupannan (2013) that a too restrictive design in Asian contexts (where dynamic street life usually flourishes

organically) can lead to having empty public spaces (especially visible on the XL2 segments).

Furthermore, having clearly demarcated public and private spaces, identified as a precondition for safety on the streets of New York City by Jane Jacobs (1961:1993) and reinforced by Montgomery (1998), was not applicable on the streets of Shanghai, confirming the argument of Xie (2012). For instance, safety concerns were raised on Pucheng Road, XL2 set, despite having surveillance cameras, but with clearly demarcated private and public spaces along with limited human activities. Overall, based on conducted observations, where more flexibility was given in the use of public spaces, a higher diversity of activities and more people watching the street were encountered, and therefore safety was insured.

Furthermore, on some segments (for example on Pucheng Road, XL2 set and on Mengzi West Road, L set), the segregation between compounds inhabited by different classes of people, especially the highly restricted access to high-end compounds, did not foster a sense of belonging, as the residents perceived themselves as part of totally disparate groups. Moreover, it is advisable for the high-end compounds to not send an indirect 'keep away' message, as uncivilized behaviours including informal refuse sorting, begging and urinating on street walls can emerge on underused pavements (as seen on Mengzi West Road, L set; Pucheng Road, Pudong South Road, XL2 set); instead, they should be more inclusive to all. By allowing flexibility for unpredictable activities to take place on the street, more liveliness, social interaction and safety can be generated on Shanghai streets.

Safety in living on Shanghai streets depends primarily on having people watching the street which is, in turn, influenced by building setbacks and business activity. Human presence (shopkeepers, residents, security guards) adds life value to streets, in contrast to attempting to insure safety through security cameras or gated compounds.

Firstly, having people watching the street near residential areas ensured a sense of safety and gave residents confidence and security as evidenced on S and M segments, which corroborated arguments of Jacobs (1961:1993). However, although opaque façades were rarely encountered, the likelihood of having residents watching the street was gradually reduced from the S to the XL2 segments, as setbacks from the street grew. Fortunately, many shopkeepers were present on the street, and the

small-scale businesses gave a reason for pedestrians to pass by almost continuously (multiplying the 'eyes on the street', as Jane Jacobs, 1961:1993, previously demonstrated). These ongoing, business-driven human activities on the street ensured a high degree of safety. At the same time, besides having shorter setbacks, the economic activities were also more diversified and concentrated on the S and M segments, representing another explanation for the higher numbers of people watching the street on these traditional segments compared to the other street segments (especially compared to the L and XL2 segments).

Therefore, along with having empty spaces around high-class gated compounds, the sense of safety was negatively affected in part because of the larger setbacks, of the limited public lighting but especially due to the lack of human activity on the streets. Agreeing with the theory of Hillier (2004), gating the compounds does not guarantee safety, which depends more on whether people lived in close-knit communities, as some respondents recognized:

"*It is safe because many people on this street have lived here for a long time, we [all] know each other"* (S_penglai_R5).

Understanding that gating communities does not guarantee safety in Shanghai, the safety concerns voiced by the citizens as a response to the new MOHURD directive (2015) of opening the gates to the street are unfounded. Instead, providing open access to residential communities could bring about the positive results of more human activity in the surroundings, and could actually improve safety, especially in the context of densely-inhabited areas.

Furthermore, although some residents referred to security cameras when asked about their perception of safety on their streets, the security cameras were far from being as significant for safety and liveability as was the presence of others:

"*It is very safe. Many people are lingering and watching the street.*" (M_jiashan_n.R2).

Ensuring safety and human presence through greater numbers of people lingering on the street is highly valuable in the Shanghai context. This should not be overlooked, while adopting, instead, the extreme of having no one on the streets, in the contemplation of a 'global city' image (as is the tendency in Shanghai Pudong, seen on the XL2 segments).

Nevertheless, children playing on the street, although adding liveliness to streets, did not represent a decisive indicator for safe streets in Shanghai. Although

some informants named places that were not safe enough for children to cross the street on their own (for instance on Rushan Road, XL1, Pucheng Road, XL2), another possible reason for not allowing the children to play on the street (33.1% of respondents) might be a cultural-psychological one, derived from what Liang (2008) identified as the historical perception of the street space being antithetical to the noble space of the courtyard:

"*Shanghai people meet their families in the 'nong' [lane], not on the street"* (M_jiashan_R1).

Nonetheless, if on the S and M segments, children were seen playing unattended on the street side more often, it might say something about having safer streets, with less traffic and more people watching the street; however, it is also a result of inhabitants' lifestyles, needing to take care of their children while, for instance, working for the shops on the street (based on observations conducted on S, M or L streets). Overall, beyond cultural habits, having children playing and shopkeepers to watch them brought human value to streets and increased liveliness.

7.3.4.3 Human activity on streets and its importance for liveability

The amount of human activity on the street in Shanghai is partly affected by characteristics of the physical environment (building density, linkage to streets), but also by population density, and lifestyle of residents.

Firstly, the effects of the physical environment on the amount of human activity on the street can be clearly understood from the encountered opposites. Reinforcing the arguments of Gehl (1987:2011) - at the negative extreme were the high-rises with large distances between buildings, with extensive automobile traffic, with large and impersonal outdoor spaces, and few activities taking place (encountered on Pudong South Road, Pucheng Road, XL2 set, Shangcheng Road, XL1 set, Xietu Road, L set, see for instance Figure 7-14, page 269, Chapter 6); at the positive extreme were the closely spaced buildings, along with more direct linkage to the street space which offered accessible areas for outdoor recreation and activities (encountered on the S and M segments, see for instance Figure 7-5, page 253).

Secondly, besides having environments at human scale, another reason why more optional activities (such as sitting, eating and exercising) took place on the S and M sets was the presence of others on streets, which further attracted more people (confirming the theories of Gehl, 1987:2011; Jacobs, 1961:1993; Whyte,

1980:2016). In this way, in the highly populated areas of Shanghai (such as the S and M areas), social activities could take place easily. Another factor that fostered the diverse social activity on the S and M streets was the existence of close social ties. Yet one more factor favourable for the development of social activity on streets but less positive concerning the overall living conditions, was the lack of open spaces within the compounds due to the high building coverage (in the S and M areas, see Chapter 6, section 6.3.2.1). In this regard, while overcrowding should be avoided when becoming a concern to hygiene and sanitation (see also Xie, 2012), the fact that Chinese tend to have greater tolerance for living in highly dense areas is advantageous for having increased possibilities of abundant human activity on streets.

Categorising human activity as domestic and non-domestic (business activity) is more illustrative in the Chinese context. Yet, the 'right' amount of human activity for 'liveable streets' in Shanghai cannot be designated; however, fundamental is that liveable streets should not appear as deserted spaces, but should display signs of human habitation.

In addition to Gehl's (1987:2011) categorisation of necessary, optional and social activities, another applicable categorisation is one based on domestic and non-domestic (business) activities on Chinese streets. An illustrative example is shopping for groceries. Though usually regarded as a necessary activity in other contexts, this can be considered optional in the Chinese context, as residents clearly expressed their enthusiasm for and contentment with this traditional habit of buying fresh produce to cook their meals on a daily basis. As grocery shopping can be considered part of the Chinese culture and therefore more than a compulsory activity in this context, to avoid confusion, grocery shopping could therefore simply be categorised as a domestic activity.

Another example is that washing clothes, cleaning vegetables, and cooking are all necessary activities, but, by being domestic, they should be differentiated from the non-domestic, necessary activities of car washing, street vending and bike-repairing, which are done for profit. At the same time, these non-domestic, business-related activities had high importance for the liveliness of the streets as well; conducted all day long, that is why, even in some of the most pedestrian-unfriendly street environments, people could still be found lingering. Unfortunately, these types

of long-lasting business activity could take place only in the few remaining spots that had not been cleared by the government, and by these governmental actions, streets liveliness was negatively affected.

A detailed study on how many people and events would be opportune or 'allowed' to use 'public spaces' in Chinese contexts, and how long the activities should last to enable a dynamic street life, can be undertaken. Yet, based on this research, there is no specific amount of human activity that can define 'liveable streets' (at least not quantitatively), and more than this, not all streets should have the same amount of human activities, because streets with different characters attract different types of human activity. Successful examples of dynamic streets were the M segments in Puxi, and two XL1 segments in Pudong (Qixia Road and Rushan Road), with different types and amounts of activities, either domestic or non-domestic (business-related), but all offering satisfactory urban scenes and having a human presence (see sections 7.2.2, 7.2.4). All in all, liveable streets should not resemble deserted spaces (as it often appeared on Pucheng Road or on Pudong South Road, XL2 set), therefore accommodating people with their own choice of activity would be beneficial for liveability at the street level.

Resident opinions can differ concerning appropriate street life activity, related to traditional or modern lifestyles, to habits, to social classes and origins. A deeper understanding of the underlying causes behind residents' complaints is needed in liveability decisions.

Considering the high population density, the high diversity of habits and activities conducted on Shanghai streets, contrasts in the residents' opinions concerning suitable activities to be conducted on the street were encountered. For instance, while some chose to live a more traditional life (buying fresh produce for daily cooking, drying clothes in the sun in public areas, forming groups to play board games on the street), for those classes with growing incomes, changes in the preferred activity have been noticed (linked to entertainment centres, higher-class restaurants and walking pets). These changes in preference confirm the arguments of Zhang Liang (2016), indicating that traditional life is being replaced as a result of recently gained affluence. Nevertheless, some residents informed how they chose to combine both traditional and modern lifestyles.

Habitual conflicts were further identified between residents who preferred to play board games, dance and walk pets on the street and those who did not, and who associated these activities with a negative impact on the quietness and cleanliness of the neighbourhood. Other conflicts have been identified between native Chinese preferring quiet evenings at home and foreigners going out to loud bars; or native Shanghai residents considering to be more appropriate to have social activities on lanes, criticising those engaging in social activities on the street, often associated with the groups of immigrants. A contrast was also identified between shop owners wanting to attract more people on to the street and the common residents who preferred quietness (as encountered on some of the segments with shopping and touristic potential) although some residents later complained about the disappearance of street life (see the comment of XL1_qixia_R3, page 471, Appendix D3).

It can be concluded that residents cannot be entirely satisfied with their living situation, and might not always capture the root cause of conflicts. Furthermore, residents might not always know precisely what they want or need, especially when they have no experience of alternative living environments; for instance, those who complained about the crowded nature of streets with a multitude of activities, might have not experienced the alternative of living in an environment with no people on the street:

"*I want this street like it used to be, when many people were on the street*" (XL1_qixia_R3).

One way to alleviate conflicts is by giving more choices to residents, including open spaces that are paved, but also natural and green surfaces, as well as quiet, relaxing areas, but also animated areas that can be surrounded by vegetation to absorb the noise. Any new public space design should thus respond smartly to a wide spectrum of needs, that might change with changes in inhabitants' incomes and lifestyles.

Besides providing retail and leisure possibilities, other strategies to attract human activity on residential streets include primarily providing seating options. Furthermore, to attract a mix of human activity, leisure habits of different age groups can be considered.

Planning an appropriate amount of retail and services (calculated according to population density and taking into consideration people's habits, see also section

7.3.3.1, page 295) could be the best strategy to attract necessary activity. Moreover, besides an improved open space design that provides opportunities for leisure and social activities to develop, planning new places of interest (playgrounds, public art) as well as providing seating, could encourage additional human activity on Shanghai streets. The seating areas need to be primarily organised with a view towards spaces with animated public life (including benches placed at lane entrances, but also in front of small businesses), offering possibilities for people to see other people. Furthermore, in spaces that form enclaves on the street (small squares), seating should be organised around a spatial perimeter, converging to a central point, in order to set places for discussion among groups of individuals and encourage social interaction (unlike that encountered on Nanquan Road, XL2 set, see Figure 6-41, picture 'g' and 'b' compared to 'a' and 'e', page 235, Chapter 6). In addition, as residents moved their tea and board-games tables to shaded or sunny areas, according to seasons (see Chapter 6, section 6.6.2.1), such tables, eventually with movable seats, can be placed near to trees, to be weather protected and benefitting of both sun and shadow. Furthermore, another approach could be to allow more flexibility in the use of new public spaces, for the space to take shape organically, according to the human activity occurring.

The category of people that has been observed to carry out most of the domestic activities on residential streets throughout the week was represented by the older generation, an aspect reflected in the demographic data of the interview respondents, where older age groups were dominant (see Chapter 5, sections 5.3.1, 5.3.2.10). Although it can be assumed (based on conducted observations) that the older generation had a more relaxed or traditional lifestyle, the demographic sample of this study reflects the trends of the rapidly aging population in Shanghai (see "Shanghai population 2018"). However, in future studies, architects and urban planners should also address the needs and the wants of younger generations[77], and examine whether providing open access to residential compounds, for instance, would offer something new in support of the social life of the youth or of other age groups.

[77] Research can be conducted to enquire whether the youth in Shanghai prefer 'third places' for interaction (as defined by Oldenburgh, 1989, quoted in Carmona & Tiesdell, 2007), such as coffee shops and bookstores, with the understanding that internet and telecommunications are also bringing changes to public spaces.

7.4 Emerging themes to Research Objective I

7.4.1 Overall perceptions of residents and professionals concerning liveable streets in Shanghai

Among the opinions of professionals and the perceptions of residents, differences as well as similarities can be identified with regards to various factors affecting liveability at the level of the street. For optimal solutions, mediating between the opinions of experts and those of residents is necessary.

First of all, differences between the perception of residents and the opinions of Shanghai professionals have been identified concerning informal vendors. While some of the academics interviewed considered street vendors to increase the risk of accidents as well as risks to public health, and disagreed with ambulant vending, residents found that informal vendors provided the convenience of cheap and accessible meals and products. Based on on-site observations, informal vendors brought diversity to streets, which accords with the arguments of Greenspan (2014) and Liu, Zhang & Zhang (2014). Informal vending represents a cultural aspect specific to the Chinese street which can promote an intrinsic place identity. Something as elementary as street food, for instance, experienced and understood by everyone, represents in Shanghai and in other Chinese cities a constituent of authenticity and recognition.

A further contrast between the perceptions of resident informants and those of professionals regarded labourers migrating to Shanghai from other areas of mainland China. While some professionals argued for social inclusion and expressed tolerance towards migrant workers, native Shanghai residents often complained about the increasing numbers of migrants, seen as a reason for the depletion of living conditions. Based on the observations of this study, the presence of migrant workers could generate some visual disorder on residential streets, but at the same time, liveliness; furthermore, migrant workers also wished for better living conditions, but they simply accepted the circumstances.

Overall, it could be argued that, through the education and better integration of migrant labourers, society as a whole would be able to evolve and be strengthened. Throughout the history of Shanghai, an increasing number of people participated in the development of the city and of society, as the growth of the city as a centre of commerce was driven by exchange and migration. Thus, as the culture in

Shanghai has been moulded through the contribution of people coming from different corners of the country and of the world, the long-term benefits of integrating all members of society can be better reinforced. Furthermore, as the culture of a society and of a city does not remain stagnant but continuously evolves, it should not be decided upfront who can or cannot live in this city. Shanghai's culture will evolve along with the changing needs and expectations of its residents and along with people moving in and out of the city. Social interaction between groups of people belonging to different classes or ethnic backgrounds should therefore be encouraged in Shanghai by promoting empathy and understanding.

Nevertheless, similarities between the opinions of residents and those of Shanghai professionals interviewed primarily concerned: the importance given to economic activities, accessibility to facilities and services, and availability of green and open spaces. While the importance of accessibility to facilities, services and green space is easily understood (see also sections 7.3.3.1, 7.3.3.2), the importance of the richness of economic activity which insure the vibrancy and liveability of Chinese streets needs to be re-emphasized. The suggestion therefore is not to overlook the advantages of small-scale businesses, just because they might not conform with the image of a 'global city'. If small-scale businesses in Shanghai disappear, the city and society will suffer an overall loss.

Other similarities included the importance of distances to public transport being short and walking conditions being good, but also the reinforced need for the correct use of the street space, with particular reference to two-wheelers. In addition, architectural and historical elements that were reasons of pride for the residents strengthened the importance of having streetscapes with identity, which have been highlighted by professionals. Particularly concerning the commonly-mentioned issue of electric bikes (as presented in section 7.3.2.2), given the appropriate infrastructure, including appropriately-sized bike lanes and traffic rules that consider cyclists' needs, cycling can become a strength in the city, reducing car travel and providing a positive influence on liveability at the level of the street.

7.4.2 Defining liveability on residential streets in Shanghai through a framework of liveability qualities

Based on the findings of this study, liveability at the level of the street in Shanghai is equivalent to a Local Humanized Environment, with good Physical Facilities for Living and small-scale Mix of Uses, where Local Economic Activities are flourishing, while conditions for Safety, Social Interaction and Public Life, and Sense of Place and Belonging are satisfied and supported.

Considering the indicators assessed on streets (see Chapter 3, Table 3-7) and their influence on liveability (explained in section 7.3), six liveability qualities at the level of residential streets in Shanghai are delineated. Under each liveability quality at the level of the streets in Shanghai, sub-qualities are prioritised (see Figure 7-17). The sub-qualities of liveability at the level of the street have been deduced from aggregating several indicators that correlated high with each other and had a strong influence on liveability.

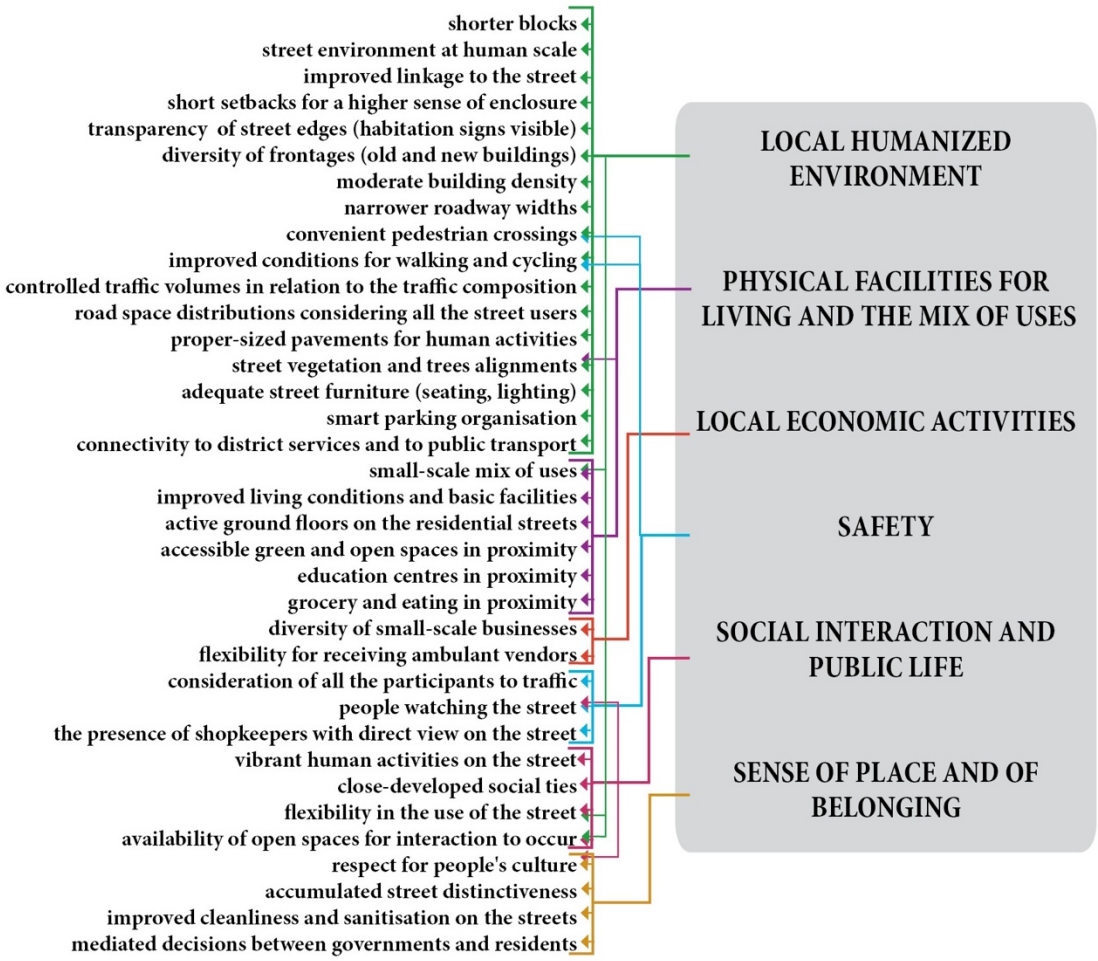

Figure 7-17: Prioritised sub-qualities of liveability

Firstly, in reference to the broad quality of the *Local Humanized Environment,* the prioritised sub-qualities encompass many street design features. From a morphological point of view, highly significant for liveable streets are short blocks (an aspect also identified by Cha et al., 2014 and the Shanghai Street Design Guidelines, 2016), a human scale and the linkage between residential areas and streets. These morphological features form synergies with short building setbacks providing a higher sense of enclosure, and with a certain transparency of street edges providing signs of human habitation. Another deduced sub-quality is related to the moderate density of buildings (an aspect also emphasised by Cha et al., 2014), that can be obtained with smaller building footprints and lower building heights (mid-rises preferred). Important is also to prioritise the diversity of frontages which can result from a balanced mix of old and new buildings (an aspect similarly emphasised by Cha et al., 2014), which ensures physically diverse street environments.

Concerning traffic attributes, the primary importance of having narrower roadway widths (an aspect also identified by Cha et al., 2014) emerged from the field study. Furthermore, critical on Shanghai streets are conditions for walking and cycling, along with providing a higher number of pedestrian crossings. Of further concern to the pedestrian environment is the issue of proper-sized pavements for accommodating human activity. Adequate street furniture (seating, lighting) in relation to people's activities, street vegetation to provide shadow and green coverage for rain absorption (an aspect also highlighted by the Shanghai Street Design Guidelines, 2016) are also important. Important for liveable streets is also having a road space distribution that better considers all its users, in addition to a smart parking organisation, so that vehicles do not occupy the space meant for pedestrian use. Along with having controlled traffic volumes in relation to traffic composition, another deduced sub-quality is represented by the accessibility and connectivity to district services and to transport options (also presumed by the professionals in this study), which can contribute to lowering the need for using private vehicles.

Secondly, in reference to *Physical Facilities for Living and the Mix of Uses,* key to liveable streets in Shanghai are the active ground floors and the small-scale mix of uses (the concept of mixed-use has also been highlighted on Chinese streets by Qin et al., 2003, but it is equally important to emphasise the small-scale character of the mixed-use, see also section 7.3.3.1). Urgently important is also providing

improved living conditions and basic facilities on early-built segments. Other prioritised sub-qualities include the accessible green and open spaces in proximity, the possibility of having good educational centres, grocery and eating establishments close by (which were of high importance for residents, see sections 7.3.3.1, 7.3.3.2).

Thirdly, compared to other studies of liveable streets that scarcely mention the importance of commercial and retail spaces for the vibrancy of the streets, the field study identified *Local Economic Activities* to be one of the most important qualities for liveability in Shanghai. Within this quality, critical sub-qualities are the diversity and prosperity of small-scale businesses, and the flexibility of receiving and accommodating ambulant vendors on residential streets. These aspects brought prosperity to inhabitants, at the same time strengthening the place identity. They composed what the Shanghai professionals in this study mentioned more broadly as an 'opportunity for starting new business' and the 'richness of local economic activities'.

Fourthly, in terms of the quality of *Social Interaction and Public Life*, prioritised sub-qualities include the need to maintain vibrant human activity and close-knit social ties on the street as well as providing available open spaces for social interaction to occur (an aspect also highlighted by the Shanghai professionals in this study). Furthermore, a key sub-quality deduced to support social interaction on the Shanghai streets is flexibility in the use of street space (see more in section 7.3.4.2).

Fifthly, in terms of *Sense of Place and Belonging*, requiring urgent attention are the levels of cleanliness and sanitation on residential streets. Another prioritized sub-quality is having mediated decisions at the level of the street and community between the local government and residents (corroborating arguments of Cha et al., 2014). This can potentially lead to improved living conditions while respecting the local culture and the street distinctiveness, which also need to be prioritized for liveability.

Sixthly, concerning *Safety*, the prioritised sub-qualities for safety in living are derived from other liveability qualities (such as Social Interaction and Public Life, and Local Economic Activities), and include having people watching the street and allowing the presence of shopkeepers with a direct view of the street. In terms of safety from traffic, important is the better consideration of all street users, which, along with amended traffic rules, would respond to the need for the correct use of

street space (highlighted by some of the Shanghai professionals). Also important for improved traffic safety is providing convenient crossings for pedestrians and improved conditions for walking and cycling, sub-qualities which have also been included to the quality of the Local Humanized Environment.

7.4.2.1 The liveability qualities on S, M, L, XL1 and XL2 streets

In Shanghai, social aspects on residential streets are becoming vulnerable, although other physical and functional liveability qualities are getting improved.

Although the concept of liveability at the level of the street should be looked for at the balance point of all six liveability qualities assessed (considering the sum of all findings of this study), throughout the field research, an ideal street with all liveability aspects at optimal levels has not been encountered.

The 'local economic activities', 'social interaction and public life' and 'sense of place and belonging' were highly representative on early-built segments (especially on the S and M segments). Such streets featured environments built at human scale, high linkage, and no setbacks - characteristics of a 'local humanized environment' that form synergies with socio-economic aspects. Nevertheless, the oldest living areas did not meet contemporary living standards, which negatively affected liveability. At the same time, in contemporary-built areas, although with more balanced built and green areas, the human scale and the short distances have been neglected in the planning process (especially in the XL2 set, but also partly in the L and XL1 sets).

Concerning the quality of 'physical facilities for living and the mix of uses', the living conditions were much improved in newer-built compounds (predominantly in the L and XL2 areas). Nevertheless, the small-scale mix of uses became vulnerable as operations of urban renewal were conducted. Yet, advantageous was that later-built segments could still benefit of mixed-use from earlier-built surroundings, and that is why the L set performed the highest when summing-up the indicators to this liveability quality.

At last, 'safety' was stable on all segments, but on streets with more human activity and interaction, a higher safety perception was insured (S and M segments), compared to streets with a lack of human activity (XL2 segments).

Overall, more balanced streets were the M and L streets, and two streets in the XL1 set (Rushan Road and Qixia Road), which at least had average performance on all liveability qualities. Most unbalanced were the XL2 streets and one street in the XL1 set (Shangcheng Road), which performed worse at social aspects, a result of the built environment configuration. Finally, the S segments performed very well on social aspects, but need urgent improvement concerning physical conditions of living.

In the end, although the Shanghai administration and the residents might not be aware of it, the social aspects on early-built streets are highly valuable for liveability. And, while aiming for an improved standard of living in the city, with better facilities and better living conditions, the social aspects should not be overlooked. Depending on each context, interventions to improve upon the liveability qualities can be informed through the prioritized list of sub-qualities (see Figure 7-17).

7.4.3 Informing the liveability understanding at the level of the city in Shanghai

7.4.3.1 Sub-dimensions informing liveability in Shanghai

Acting upon the identified qualities of liveability at the level of the street can positively influence liveability dimensions at the city level in Shanghai, through determined sub-dimensions that link the two levels of analysis.

Considering primarily the first part of this study with professionals (see Chapter 4, Table 4-2, page 139) it emerged that liveability at the level of the city in Shanghai is conceptualized on four dimensions: the environment, the economy, the social dimension, and governance, confirming the theories of Wang, Zhu & Zhang (2011) and Liu & Wang (2013).

Furthermore, between the six qualities of liveability on residential streets and the four liveability dimensions at the city level in the Chinese context, this study recognises several sub-dimensions linking the two levels of analysis (Figure 7-18). These sub-dimensions were deduced when correlating: the aspects highlighted by professionals for liveability in Shanghai (Chapter 4, Table 4-2); with the magnified sub-qualities of liveability at the street level (Figure 7-17).

Several sub-dimensions link more than one liveability quality at the street level to more than one liveability dimension at the city level. In the diagram however (see Figure 7-18), only the strongest relations are presented.

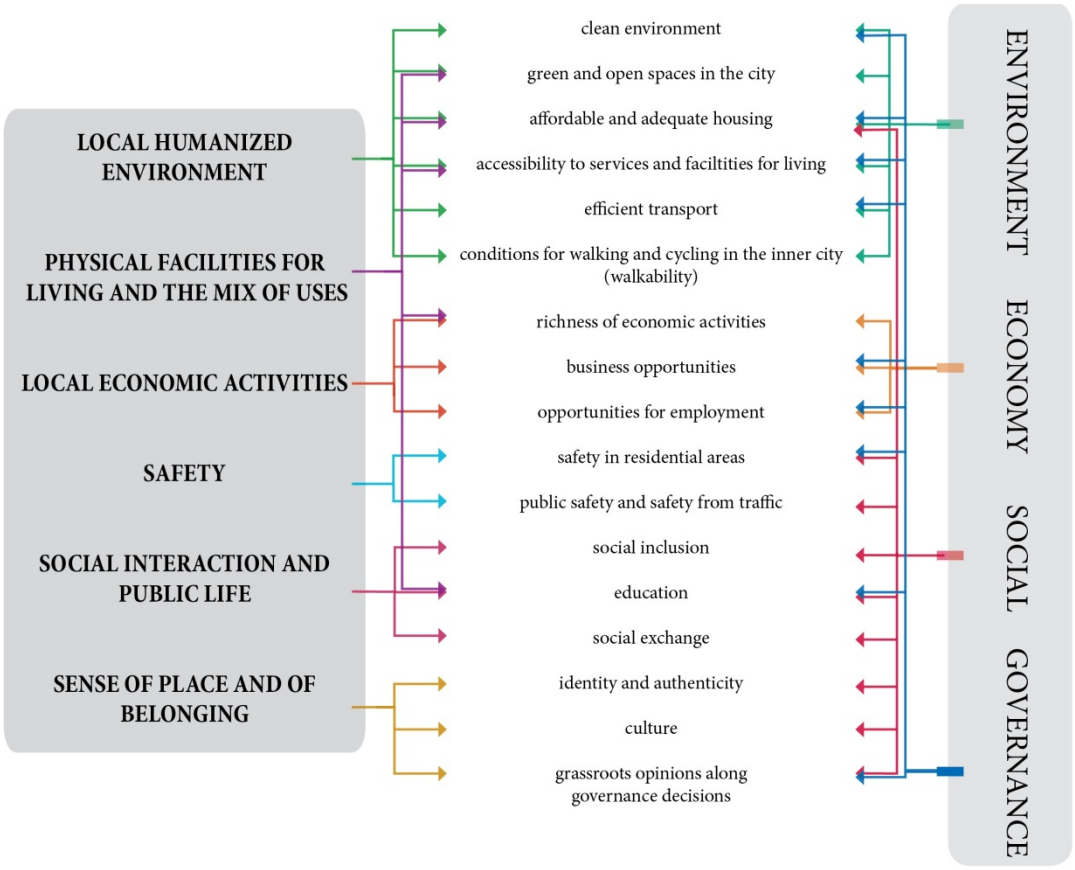

Figure 7-18: Link between liveability qualities on streets and liveability dimensions at the level of the city

Firstly, the *dimension of the environment* in Shanghai is informed by sub-dimensions of clean environment and of green and open spaces in the city, which have been emphasised by professionals, and which are important for residents in relation to their living environment. Other deduced sub-dimensions are related to affordable and adequate housing, and to accessibility to services and facilities, emphasised by both professionals and residents in this study. In addition, the importance of efficient transport and improved conditions for walking in the inner city emerged from interviews, while the importance of adequate cycling conditions in the city resulted from systematic observations. In the end, these prioritised sub-dimensions reveal how the *dimension of the environment* at the level of the city in Shanghai can be directly informed by the qualities of the *Local Humanized*

Environment and of *Physical Facilities for Living and the Mix of Uses* at the level of the streets and adjacent communities.

Secondly, sub-dimensions informing the *social dimension at the level of the city in Shanghai* relate primarily to social inclusion and education, aspects emphasised by the Shanghai professionals, while the need to address them has been understood from the field study. Furthermore, benefit is provided by the high possibilities for social and information exchange in Shanghai, a current advantage supplied by the city's high population density, as scholars Yuan (2005) and Douglass (2002a) also emphasized. Furthermore, Shanghai professionals highlighted the importance of safety in residential and pedestrian areas, and although based on observations and residents' responses, safety in living and from traffic were not problematic, they nevertheless need to be further ensured and improved upon. Shanghai professionals also emphasised the importance of identity and authenticity of place, and the cultural aspects in the city, whose importance could also be deduced by expanding the results of the field study. Overall, the *Social dimension at the level of the city in Shanghai* is informed directly by the qualities of *Safety*, *Social Interaction and Public Life*, and *Sense of Place and Belonging* occurring at the level of the streets and within communities.

Thirdly, the most important sub-dimensions of *Economy* are related to the richness of economic activity (whose high importance emerged clearly from the field study), and to business opportunities (emphasised by several groups of stakeholders in this study, including academics, developers and resident-owners of small businesses). In addition, opportunities for employment can also be considered (as emphasised by Shanghai professionals). Overall, the *dimension of Economy in Shanghai* is informed directly by the quality of *Local Economic Activities* at the level of the streets.

Fourthly, concerning the dimension of *Governance*, several Shanghai professionals recognized the need for efficient decision-making and public policy as well as for advanced governmental vision (see Chapter 4, page 134). The importance of complementing government decisions with bottom-up initiatives has also been argued by Zhao, 2007 and Du et al., 2012. Nevertheless, the detached attitude of residents with regards to government's responsibilities towards public spaces indicate that adopting Western-inspired public participation would not be effective. Yet, exceptional examples showcasing the residents' contentment when the

government responded to their needs while rebuilding their compounds indicate that better results could be overall obtained in the city when grassroots opinions are closer considered in governance decisions. Moreover, the Governance dimension is directly linked to several other sub-dimensions informing the three liveability dimensions of Environment, Economy, and the Social dimension (see Figure 7-18). Thus, it can be deduced that the dimension of *Governance* is linked to *all six qualities of liveability at the level of the streets and communities* in Shanghai, and, reinforcing Yuan's (2005) argument, governance in China thus has the capacity to balance the development while pursuing liveability.

Moreover, between the qualities of liveability at the level of the streets in Shanghai (Local Humanized Environment, Physical Facilities for Living, Local Economic Activities, Safety, Social Interaction and Public Life, and Sense of Place and Belonging) and the dimensions of liveability at the level of the city (Environment, Economy, the Social dimension, Governance), a nested relation is revealed, informed through sub-dimensions. Consideration that liveability at the level of the street is closely nested into liveability at the level of communities (as residents referred repeatedly to issues happening within their compounds and communities when enquired about their streets), and overall nested into liveability at the level of the city, confirms the insights of Zhang Wenzhong (2016) on how one level of analysis cannot be entirely separated from another, with regards to liveability problematics (Figure 7-19).

Nevertheless, at wider levels of analysis (city, region, country), the liveability aspects become more generable and broad, while specific and contextual results emerge from empirical studies conducted at local levels of analysis (such as residential streets in this study).

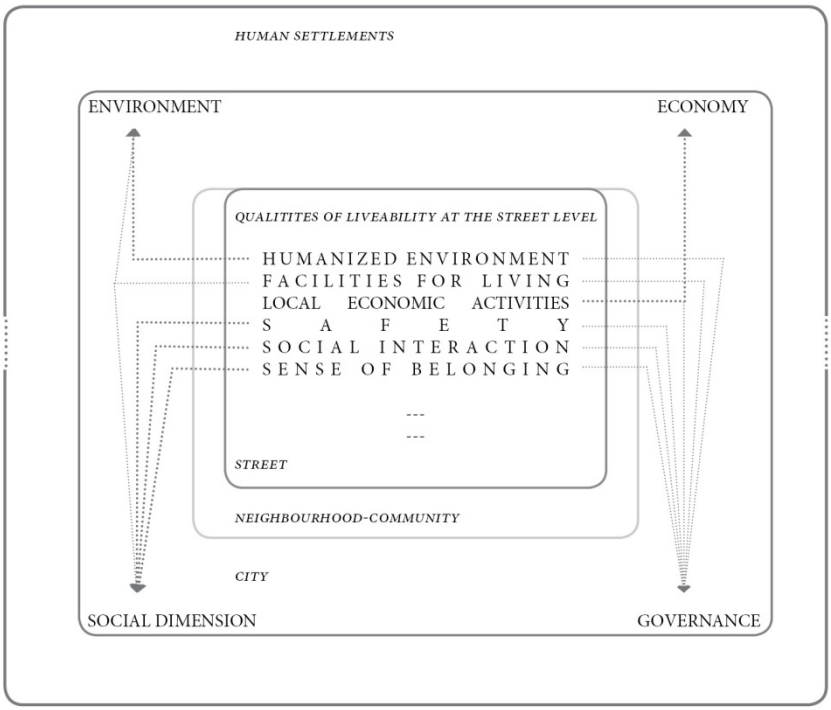

Figure 7-19: Nested view of liveability at different levels of analysis

7.4.3.2 Role of stakeholders for liveability in Chinese settlements

To approach the notion of liveability in Shanghai and other Chinese contexts, interdisciplinarity and holistic thinking are fundamentally needed.

The fact that, in the first part of the study with Shanghai professionals, different categories of actors were concerned with different aspects of liveability (practicing architects and planners were more involved with built environment issues, the academics were more involved with the natural environment and social issues, the developers were concerned with economic issues, see Chapter 4, section 4.5) indicates the need for interdisciplinarity and collaboration in liveability matters. Furthermore, although government representatives refused to participate to this study, their role is highly significant in advancing the plans for liveability, especially in the Chinese context where public infrastructure comes entirely under state administration and decision-making is strongly directed by the government. In this regard, policymakers and governors, along with researchers and common residents need to get more involved in liveability matters.

Moreover, liveability in Chinese settlements requires a holistic approach (as also emphasized by Shanghai professionals, see Chapter 4, page 134), to capture its complexity, but in the same time to allow a pragmatic response to its multiple factors

(reinforcing arguments of Wu Liangyong, 2005). Through a holistic approach, a response to different objective and subjective factors of liveability can be found. In this regard, people can be given the possibility to choose their living environments according to their needs (an aspect emerging from interviews with professionals and reinforcing arguments of Ma, 2007). Ultimately, the concept of liveability responds to the balance sought between human and its environment, idea identified in the responses of professionals in Shanghai (see Chapter 4, page 134), corroborating previous theories of Chinese scholars (Ma, 2007; Wu L.Y., 2010; Zhang W., 2016) originated from ancient Confucian and Daoist ideologies. Overall, liveability can be seen as an instrumental goal by which to achieve the higher purpose of harmonious human settlements, in which China can follow its own characteristics and traditional wisdom (reinforcing arguments of Wu Liangyong, 2010).

7.5 Conclusion to Chapter 7

This chapter discussed themes emerging at different stages of this research, starting from the specific findings on selected street sites to the wider conceptualisation of liveability in Shanghai and in China.

First of all, advantages and disadvantages of the S, M, L, XL1 and XL2 streets have been discussed, revealing positive social aspects on streets in early-built areas, along with potential interventions for improvement.

Furthermore, discussions that relate to Research Objective II revealed the most important indicators to consider in the design and planning of liveable streets in Shanghai, considering the four criteria of morphological, traffic, functional and social characteristics.

Furthermore, as part of discussion themes to Research Objective I, aspects to consider when comparing the conceptualisation of liveable streets from the perspectives of professionals and of residents have been revealed. Epitomising all the findings of this research, the importance of six main qualities that define liveability at the level of the streets in Shanghai (the Local Humanized Environment, Physical Facilities for Living and the Mix of Uses, Local Economic Activities, Safety, Social Interaction and Public Life, and Sense of Place and Belonging) has been demonstrated. As part of encompassing discussion themes, sub-qualities have been

prioritised under each liveability quality, to direct interventions for liveable streets in Shanghai. Moreover, the way the conceptualisation of liveability at the level of the streets informs liveability at the city level has been revealed, identifying sub-dimensions that link the two levels of analysis. Finally, the need for interdisciplinarity in the liveability approach in Chinese settlements has been discussed.

8 CONCLUSIONS

8.1 Introduction to Chapter 8

8.1.1 Purpose of the thesis

This study set out to reveal the understanding of the liveability concept in a Chinese context. Given the changing nature of the understanding of the concept of liveability, there are different ways of approaching a liveability study. However, for this research, I have devoted myself to the liveability enquiry in a Chinese context, specifically on residential streets in Shanghai.

The main research question of this study was to *define how liveability is to be understood and how this concept can be applied at the level of the street in a Chinese context*.

This question has been answered while reaching the two research objectives of this study, which were *to define liveability at the level of the streets in Shanghai through a framework of influential factors relevant for this context (Research Objective I),* and *to inform the design and planning of liveable streets in Shanghai by considering the effect of particular liveability factors at the street level (Research Objective II)*. Furthermore, in order to reach the two objectives while obtaining answers to the main research question, research sub-questions (sq0, sq1, sq2, sq3 and sq4) have been formulated and informed the steps taken in the approach of this research. The research sub-questions have been answered through a theoretical study with professionals in Shanghai and through a field study on selected street sites. Research Objective II has been achieved primarily by answering the research sub-questions concerning *the way morphological, traffic, functional, and social characteristics affect liveability at the level of the streets in Shanghai (the research sub-questions sq1, sq2, sq3, sq4*). Research Objective I has been reached through the synergic sum of all findings from the field (answering research sub-questions sq1, sq2, sq3 and sq4) while closely considering the findings on *how liveability is conceived and practiced by multiple stakeholders in Shanghai (research sub-question sq0*). Research Objective I is inclusive of Research Objective II. While reaching the research objectives, and based on the combined findings to the research sub-questions, the Main Research Question has been answered.

In this manner, by understanding how liveability is perceived and how life is experienced at one fundamental scale (on residential streets), in correlation with theoretical conceptualisations from concerned stakeholders, the definition of liveability in a Chinese context emerged, together with the applicability of this concept at the level of residential streets in Shanghai. Hence, this study is putting forward a framework of six main liveability qualities and provides recommendations for the design and planning of liveable streets. In addition, this study suggests a number of theoretical and policy implications in response to the pursuit of urban liveability in Chinese settlements.

8.1.2 Executive summary

This research is organised in eight chapters. Chapter 1 provides an introductory overview of the meandering times China is experiencing, aiming to find harmony alongside an unprecedented urbanisation process. The chapter also establishes the reasons for studying liveability at this moment in the context of Shanghai, a Chinese city with foreign influences, considered opportune for studying the liveability concept that has been theorised preponderantly in a Euro-American context. Presenting multiple typologies of streets (with both foreign and Chinese characteristics), this study of Shanghai is also pertinent in terms of determining (in relation to the liveability concept) how to respond to the new-released MOHURD directive (2015), which focuses on providing open access from the street to the previously gated communities.

Chapter 2, through the review of literature, reveals that liveability is a discourse which includes both objective and subjective aspects, and that its conceptualisation can vary from area to area, especially in terms of socio-cultural aspects. In China in particular, liveability in cities is broadly conceptualised in the literature as being based on four pillars of economy, the social dimension, the environment, and governance. For the level of the street, it similarly emerged that different attributes of liveability have been emphasised across different studies conducted in different contexts. In the Chinese context, the relevant attributes were related to a humanized environment, physical facilities for living, the local economy, and a sense of belonging. In addition, although slightly less problematised in previous studies of China, the conditions for safety and social interaction have been strongly emphasised in other street-related studies around the world and were

considered relevant for this study on liveability at the level of the street. The end of the literature chapter presents an Extensive Checklist of Liveability Attributes, Constructs and Indicators that could be used to inform street-related studies in relation to liveability.

Chapter 3 presents the integrated methodological approach adopted for this liveability study, based on mixed methods and combined research strategies. For the first stage of the research, a study was designed with concerned stakeholders in Shanghai (consisting of an online, self-administered survey and semi-structured interviews), meant to confirm, within this context, the applicability of the dimensions and attributes of liveability that have been extracted from the literature, as well as to collect other professionals' opinions concerning factors that are significant for liveability in the Shanghai context. This stage of the research was followed by a comprehensive field study on residential streets, comprising interviews with residents (semi-structured and structured interviews) and systematic observations (physical surveys, behavioural mapping, photography, counting pedestrians and vehicles). Fifteen street sites were selected within the Inner Ring Road area of Shanghai and categorised as S, M, L, XL1 and XL2 streets, based on their morphological characteristics. Furthermore, a Methodological Framework of Indicators for studying liveable streets in Shanghai guided the field study of the selected street sites. Overall, the various research strategies employed captured different facets of liveability at different levels of analysis.

Chapter 4 included the findings from the study with Shanghai professionals. The responses indicated the applicability in practice of the four dimensions of liveability in Chinese cities (extracted from the literature review) for the context of Shanghai. Furthermore, a general agreement with the presumed liveability attributes at the level of the street resulted, which have been denominated as 'qualities' and which have been later assessed through the field study on selected street sites. This theoretical study with professionals resulted in several aspects to consider under each liveability quality, which partly informed the Methodological Framework of Indicators for liveability at the level of the street in Shanghai (presented in Chapter 3 as part of the methodology).

Chapters 5 and 6 included findings from the field study on streets. Chapter 5 presented findings from interviews with residents, revealing resident perceptions on liveability issues, and Chapter 6 presented findings from systematic observations,

revealing the particularities of each street. The findings are presented according to indicators defined in the Methodological Framework of Indicators for Liveable Streets in Shanghai. At the beginning of Chapter 5, a synthesized correlation of data from interviews and from systematic observations is given, revealing how, from the S to the XL2 streets, standards of living increased but social activities on the street decreased.

Chapter 7 discusses the way liveability indicators combine on S, M, L, XL1 and XL2 street sets, revealing at the same time advantages and disadvantages of each street. Furthermore, the effect of significant indicators for liveable streets in Shanghai has been discussed. In addition, Chapter 7 encompasses discussion themes derived from correlating findings from the field study with theoretical aspects from the study with professionals. All these informed the definition of liveable streets in Shanghai and the understanding of the liveability concept in this Chinese context.

Chapter 8, the conclusion chapter, presents an overview of the thesis, along with implications, recommendations and final remarks.

8.2 Synthesised Response to the Main Research Question

The main research question of this dissertation is: *How is liveability to be understood and how can this concept be applied at the level of the street in a Chinese context?* The response to this main research question primarily consists in the definition of liveability at the level of residential streets in Shanghai, formulated as follows:

Liveability at the level of residential streets in Shanghai is defined through having a Local Humanized Environment, with good Physical Facilities for Living and a small-scale Mix of Uses, in which Local Economic Activities are flourishing, while conditions for Safety, Social Interaction and Public Life, Sense of Place and Belonging are satisfied and supported.

As part of the liveability definition, sub-qualities have been prioritised to guide liveability interventions on residential streets and in adjacent communities, at this time, in the context of Shanghai (see Table 8-1, below).

Table 8-1: Qualities and sub-qualities for liveability on residential streets in Shanghai

QUALITIES	SUB-QUALITIES
LOCAL HUMANIZED ENVIRONMENT	shorter blocks
	street environment at human scale
	improved linkage to the street
	short setbacks for a higher sense of enclosure
	transparency of street edges (habitation signs visible)
	diversity of frontages (both old and new buildings)
	moderate building density (preferable mid-rises with smaller building footprints)
	narrower roadway widths
	convenient pedestrian crossings
	improved conditions for walking and cycling
	controlled traffic volumes in relation to the traffic composition
	a road space distribution considering all the street uses and users
	proper-sized pavements for human activities
	street vegetation and trees alignments
	adequate street furniture (seating, lighting)
	smart parking organisation
	connectivity to public transport and to district services
PHYSICAL FACILITIES FOR LIVING AND MIX OF USES	small-scale mix of uses
	improved living conditions and basic facilities
	active ground floors on residential streets
	accessible green and open spaces in proximity
	education centres in proximity
	grocery and eating in proximity
LOCAL ECONOMIC ACTIVITIES	diversity of small-scale businesses
	flexibility for receiving ambulant vending
SAFETY	people watching the street
	the presence of shopkeepers with direct view on the street
	consideration of all the participants to traffic (and relevant traffic rules adopted)
SOCIAL INTERACTION AND PUBLIC LIFE	vibrant human activities on the street
	close-developed social ties
	flexibility in the use of the street
	availability of open spaces for interaction to occur
SENSE OF PLACE AND BELONGING	respect for people's culture and lifestyles
	accumulated street distinctiveness
	improved cleanliness and sanitisation on the streets
	mediated decision making between local governments and the residents

Some of the prioritised sub-qualities at the level of the streets confirmed the theoretical recommendations indicated by Cha et al. (2014), confirmed some of the practical recommendations indicated by Qin et al. (2003), and some of the design solutions given by the Shanghai Street Design Guidelines (2016). However, the list of liveability sub-qualities at the level of residential streets in Shanghai, put forward through this study (see Table 8-1), is farther-reaching, links both theoretical and practical aspects, and is derived from connections and synergies between different indicators assessed in the field. Attending to the prioritised sub-qualities thus has the potential to improve liveability significantly at the level of the street in Shanghai.

The present situation in Shanghai, in relation to the six qualities of liveability, is differing: The Local Humanized Environment and Physical Facilities for Living and the Mix of Uses are increasingly improving, although more attention is needed concerning particular aspects - especially regarding the neglected urban role of the street in comparison to the prioritised transport function through increased motorization, as well as the danger in eliminating the small-scale mix of uses from the streets through reconstructions; the Safety quality is stable at the level of the streets in Shanghai, although possibilities can always be found for improvement; however, Local Economic Activities, Social Interaction and Public Life, Sense of Place and Belonging, although developing organically, were found to be vulnerable and requiring focused attention.

What is more, the six liveability qualities identified at the level of residential streets (Local Humanized Environment, Physical Facilities for Living and the Mix of Uses, Safety, Local Economic Activities, Social Interaction and Public Life, and Sense of Place and Belonging) inform the four dimensions of liveability (environmental, social, economic and governance) in Chinese cities which have been put forth by Wang, Zhu & Zhang (2011) and have been confirmed through this study with Shanghai professionals (see Figure 8-1).

The link between liveability qualities at the level of the streets and the dimensions of liveability at the level of the city in Shanghai is informed through sub-dimensions (see Figure 8-1), which were deducted when extrapolating the sub-qualities at the level of the street in relation to the theoretical aspects emphasised by the Shanghai professionals for urban liveability in Shanghai city.

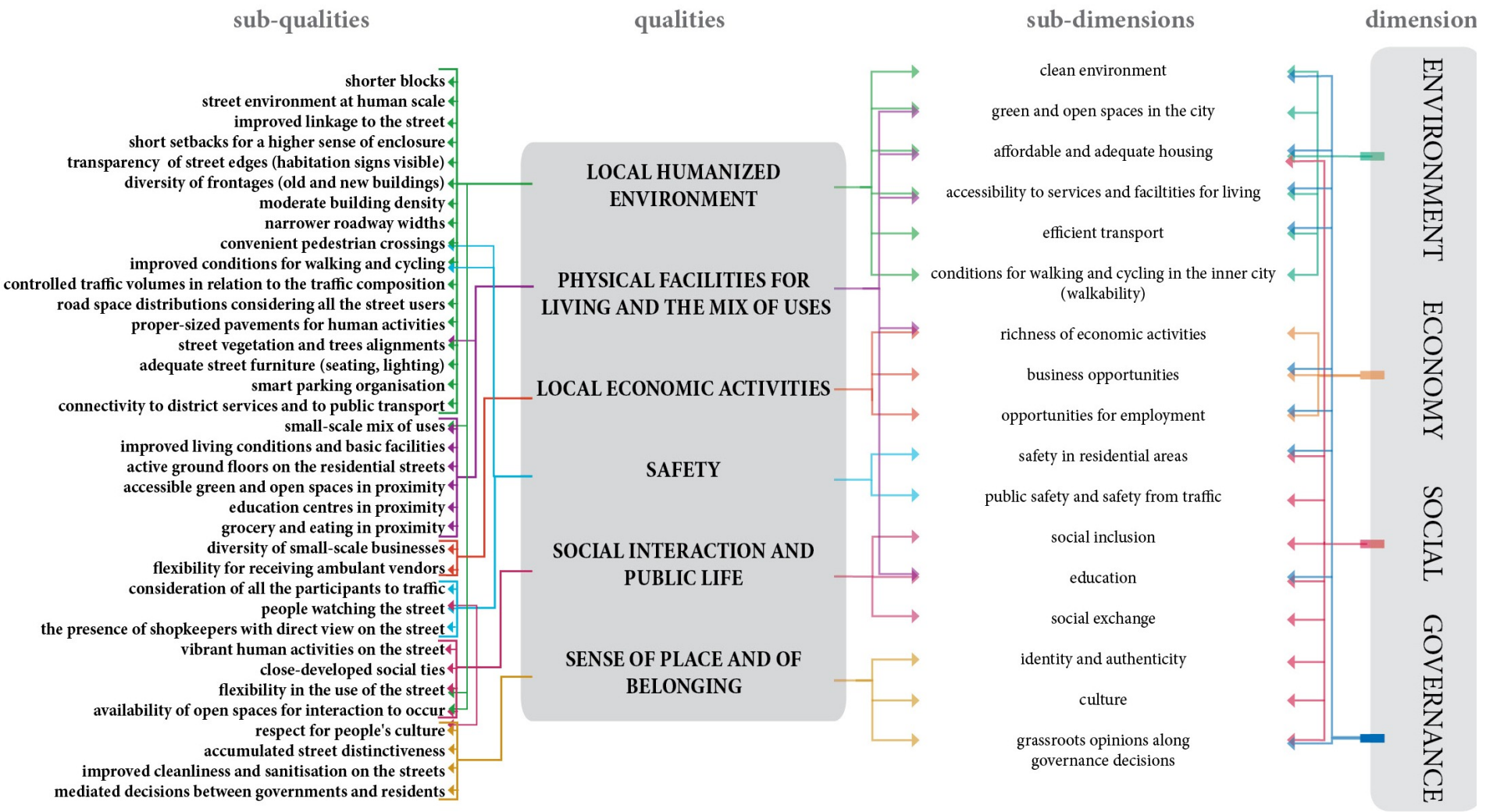

Figure 8-1: View of liveability in Shanghai

Ultimately, liveability in the Chinese context requires a holistic approach and can be considered an instrumental goal in order to achieve harmony in Chinese settlements.

Response to research sub-question sq0 *- How is liveability conceived and practiced in Shanghai from the perspective of multiple stakeholders?*

Firstly, most of the deduced sub-dimensions to the Environment, Economy and Social dimensions conform strongly with aspects highlighted by Shanghai professionals, for liveability at the city level. However, concerning the Governance dimension, while most Shanghai professionals strongly emphasised the power of the government to advance improvements concerning urban liveability in China, through extrapolating the results of the field study it could be deduced that optimal solutions for liveability can be identified when considering closer the needs of residents.

Secondly, most of the deduced sub-qualities under the more objective qualities of liveability at the level of the streets in Shanghai (Local Humanized Environment, Physical Facilities for Living and the Mix of Uses, Local Economic Activities) have been specified by the Shanghai professionals and have been confirmed through the field study. However, many of the prioritised sub-qualities under the more subjective qualities of liveability at the level of the streets in Shanghai (Safety, Social Interaction and Public Life, Sense of Place and Belonging) became clear only by considering the summed experiences of the residents, going beyond the theoretical opinions of professionals.

Thirdly, with regard to particular indicators and factors affecting liveability at the level of the street, there resulted both similarities and differences among the perceptions of residents and of professionals. Additionally, differences of perception resulted among different groups of residents as well. It overall resulted a need for mediation between divergent opinions, as well as a need for apprehending the deeper underlying reasons behind the points of view shared by different actors in Shanghai.

Nevertheless, it is not a matter of how much consideration should be given to the conceptualisation of liveability from the point of view of professionals and how much should it be informed by the inhabitants of the areas examined, but rather a matter of cross-communication and cooperation among different groups of actors.

Ultimately, although some residents provided their judgements, while others were more detached from the external conditions of living, and although some

professionals had a stronger focus on either the physical, social or economic environment, the summed opinions and perceptions indicated a common ideal – that of a living environment in consonance with the natural conditions of living and responsive to human needs. This ideal of harmony in living confirmed some of the theories derived from traditional Chinese philosophies in human settlements, previously highlighted by Wu L.Y., 2010 and Ma, 2007.

Response to research sub-question sq1 *- How do the physical and morphological characteristics of the built environment in Shanghai influence the concept of liveability at the level of the street?*

The physical and morphological characteristics impacting liveability on residential streets in Shanghai most strongly are associated with block sizes, human scale, and linkage to the street. These indicators are in direct connection and form synergies among themselves, as well as with several other physical features that influence liveability at the level of the street.

To start with, the shorter blocks could directly influence the human scale of the street and generated more permeable environments for pedestrians. In addition, block sizes correlated to a certain extent with the historical period of development (earlier-built areas have been built on shorter blocks in Shanghai), which were further correlated to the setbacks from the street (earlier-built areas on shorter blocks have been built with shorter setbacks). More than this, the historical period of development partly determined the complexity of the buildings (older buildings have a higher degree of complexity) which has significantly affected the diversity of frontages and the pedestrian experience on the street.

Moreover, the building setbacks, along with the permeability of the blocks (shorter blocks also prompted smaller building footprints) affected the linkage to the street. What is more, the complexity of the buildings, the enclosure, and the transparency of street edges, together with other details of the pedestrian environment (such as pavement widths, street lighting, street furniture and street greenery), influenced the human scale of the street environment (through providing habitation signs and through enriching the pedestrian experience). In addition, the height of the buildings (which directly informs the human scale of the street, a reason for which mid-rises are preferred) in synergy with the building coverage (which

informed, to a certain degree, the linkage to the street), can determine the pursued moderate building densities.

The above highlighted physical aspects able to positively influence liveability at the level of the street are in contrast to: the Chinese superblocks, associated with uncomfortable walking distances and the disappearance of street life; the tendencies of contemporary planning in China to suggest high-rises, built further away from the street (large setbacks), resulting in street environments that were out of human scale; and wide pavements which aim to indicate prosperity, but which become empty and unused by pedestrians, occupied instead by parked vehicles.

Response to research sub-question sq2 *- How does automotive traffic impact liveability on residential streets in Shanghai and how is traffic a barrier for social interaction?*

In terms of informing the effect of automotive traffic on social interaction, traffic composition and the roadway widths were of greater importance than traffic volumes alone. This is because on some segments with higher traffic volumes, where pedestrians could cross the street easily, the negative effect of car traffic on forming social relations on the street was nullified. High traffic volumes on narrower roadways thus had a lower impact on social life, especially when there were more convenient possibilities to cross the street.

Alongside traffic volumes, other decisive factors affected social interaction on the Shanghai streets, such as the configuration of the road, the organisation of housing in gated compounds and the linkage to the street, the length of living in one place, but also how social one person was. In this Chinese context, the relation between traffic and liveability at the street level thus proved more complex than the previously stressed, almost unidimensional relationship theorised in the Euro-American discourse (with traffic volumes inversely correlating with social interaction).

Furthermore, although contributing significantly to the calculated traffic volumes on the Shanghai streets, the numerous cyclists and e-bike riders also rendered their human presence to the streets, in contrast to the more impersonal cars. Along with alleviating many of the traffic conflicts through prioritising cyclists, the overall better organisation and distribution of the roadway space (preferably on

narrower widths) that prioritise slow traffic and public transport can balance mobility needs, as well as ensure traffic safety.

Response to research sub-question sq3 *- How do physical facilities for living, the functional distribution of uses, and economic activities influence liveability at the level of residential streets in Shanghai?*

The small-scale economic activities (micro-businesses) and the small-scale mix of uses on the residential streets of Shanghai were found to significantly affect liveability, as they brought diversity and liveliness to the streets. However, the frequent reconstruction operations, which although brought improvements to living standards, negatively impacted the local economic activities, while the overall living experience became less vibrant. In addition to a tendency of large-scale commercialisation, there emerged a high risk of losing the vitality and vibrancy provided by small-scale economic activities, through forming active ground-floors. These findings thus contradict the exposed preferences of authorities for large-scale commercialisation and for planning residential areas on mono-functional blocks.

Furthermore, positively influencing the establishment of small commercial facilities were the morphological features of the built environment (short setbacks, high linkage to the street), the accessibility and connectivity (especially with consideration for walkable distances), and the population density (including high numbers of passers-by). However, although the earlier-built residential areas provided most of these advantages, which encourage small-scale commerce to settle, the main drawback in older areas was represented by the limited access to basic facilities (sewage, gas system), which are crucial for liveability.

Furthermore, the green and open spaces, educational centres (schools, kindergartens), grocery stores and eating opportunities in proximity (restaurants, vegetable and fruit shops) were also significant for liveability, according to the perspective of residents. In addition, proximity to commerce and services influenced the living preferences of residents, as well as the need for (more frequent) travel.

Research sub-question sq4 *- Which socio-demographic characteristics and socio-psychological factors affect the perception of liveability on residential streets in Shanghai and how do they influence it?*

Firstly, it emerged that the lower social classes were compensating for the poorer conditions of living with a richer social life. In contrast, the high-income classes tended to isolate themselves in real-estate-developed gated communities. However, the streets bordering the high-class compounds were lifeless, while public safety and sense of belonging were also affected at the street level. Safety in living was ensured by the people watching the street, and the presence of shopkeepers and residents on the Shanghai streets therefore brought added value to the notion of safety, beyond quantification. In contrast, the drastic separation of function and use within the physical environment had a negative effect on safety by reducing the chance for natural surveillance from the people's side. Thus, a need for insuring flexibility in the use of the street space emerged. At the same time, the sense of belonging was negatively affected through the reinforced restrictions. Nevertheless, appreciating the large green spaces in the living compounds, the lower densities of buildings and of residents, as well as the improved housing conditions, many residents dreamed about living in newly built high-rises.

However, in contrast to the residents' aim for modernity and status among contemporary-built areas, on the older streets more identity was accumulated, and some of the sites with architectural and historical significance were reasons of pride for some residents.

Furthermore, opportunities for interaction are not consciously valued in China; where densities of people were higher, interaction took place effortlessly and the perceived danger was sooner that of overcrowding. Yet although few residents were aware of the importance of tight social networks, complaints concerning the lowered amount of human activity on the street after reconstruction showed how reduced social interaction negatively affected liveability at the level of the street.

Moreover, it was paradoxical to notice the overall detached attitude of many residents to changes taking place within the street environment, although (despite the overall control of the government), dull streets in the Chinese context were reshaped through the intensity of human activity. Compensating therefore for the poor urban design of the street space in Shanghai and the non-active involvement of residents in

the planning process were the high population densities, as well as the resourcefulness and adaptability of residents.

Ultimately, from a socio-psychological and socio-demographic perspective, liveability primarily depended on: people watching the street for increased safety; seeing and interacting with other people (having a good amount of human activity on the street); the chance to gather; the flexibility of using the street space according to human need (having less restrictions); having elements that provided residents with reasons for pride (supplying a greater sense of belonging); and at the same time, not having overly-crowded spaces (which indicated the need for moderate population densities in residential areas).

8.3 Theoretical Implications

This section outlines theoretical implications of the findings of this research in relation to: other liveable street studies conducted in international contexts; to the research process based on a framework of indicators; and in relation to the wider conceptualisation of liveability in human settlements.

8.3.1 Particularities of liveable streets in a Chinese context compared to the wide literature

In terms of liveability on residential streets, both similarities and differences have been identified when comparing the findings in the Chinese context (concluded through this study) to previous theories advanced in other global contexts.

Similarities with other international studies that focused on street life and on liveable streets were encountered primarily in relation to the indicators categorised under the qualities of Local Humanized Environment and Physical Facilities for Living and the Mix of Uses, concerning especially the importance given to having walkable distances over shorter blocks, having narrower streets with more comfortable crossing facilities for pedestrians, having available green and open spaces in proximity, ensuring the provision of improved physical facilities for living, and ensuring mixed use. Some of these aspects have been emphasised by Jacobs (1961:1993), Gehl (1987:2011) and Montgomery (1998) in international contexts, and by Cha et al. (2014), Qin et al. (2003) and the Shanghai Streets Design Guidelines (2016) in the Chinese context.

The most significant difference compared to other international contexts concerning the quality of the Local Humanized Environment was that in the Chinese context the street was perceived as 'at the outside' and many residents did not relate their life directly with what was happening on the street. In this way, some Chinese people did not express an opinion about the space of the street, comfortably leaving the responsibility of street development to the authorities. Another significant difference emerged concerning the relationship between traffic and social interaction on the street. Although high traffic volumes have a negative impact on forming social relations (in accordance with the arguments of Appleyard & Lintell, 1972 and Appleyard, 1981), additional factors were identified that negatively influenced the formation of social relations on the streets in Shanghai: oversized roadways, the organisation of housing into enclosed compounds, and population displacement.

Concerning Facilities for Living and the Mix of Uses, the difference was that facilities were improved through reconstructions rather than renovations, which eliminated the small-scale mix of uses.

The study encountered more significant differences compared to previous studies in international contexts related to people's culture, captured through the qualities of Social Interaction and Public Life, Sense of Place and Belonging and (perception of) Safety. In the Chinese context, a strong positive aspect was represented by the continued traditional culture and stronger social ties, especially among the elderly. This was manifested through preference for spending free time on the street side or in activity centres, while drinking tea, and having social activities such as square dancing and playing board games. Particular also was the wish to have lower densities of people, although population density was one of the favourable factors that naturally generated social interaction. At the same time, specific to the Chinese context was the accommodating power of the people, being adaptable to almost any conditions conferred. Some residents revealed a Daoist perception of life in regard to what constituted the subjective side of liveability, not letting external conditions affect their inner wellbeing (although this does not mean that living conditions and street environments should not be improved).

Also standing out was the importance of Local Economic Activities in the Chinese context (these had a direct influence on safety, social interaction and sense of place). This finding is distinct from principles prioritised in Western contexts, where economic activity in relation to living areas is less emphasised. However, the

critical importance of local economic activity for liveable streets in the Chinese context is in accordance with previous findings in other Asian contexts (confirming particularly the arguments of Kim, 2012 and of Greenspan, 2014), thus leading to the presumption that local economic activity has a role in defining the specificity of Asian streets.

8.3.2 Liveability informed through a framework of indicators

The compiled Methodological Framework of Indicators for liveability on residential streets in Shanghai (see Chapter 3, Table 3-7, page 117) extensively guided the field study in this research; this Methodological Framework could be further considered for other elaborated liveability studies on residential streets in Chinese contexts. The Methodological Framework can also be a source of inspiration for liveable streets studies in other developing countries, especially in Asia. However, in contexts other than those of Shanghai or China, some indicators might have a different interpretation, especially when related to the more subjective aspects of culture and lifestyle. Moreover, the indicators assessed as part of the Methodological Framework are not absolute, but can be adjusted and different selections made from the Extensive Checklist of Liveability Attributes, Constructs and Indicators (Chapter 2, Table 2-1, page 51), depending on the context and the problematic of each study.

For the context of Shanghai however, based on how the indicators defined in the Methodological Framework combined with each other, under the six liveability qualities identified, specific sub-qualities were prioritised to reflect what needs to be currently addressed to achieve liveable streets in Shanghai (see Table 8-1). Extending further the meaning of the identified sub-qualities at the level of the streets and by considering the opinions of Shanghai stakeholders, it was possible to outline a list of sub-dimensions that inform liveability in Shanghai at the level of the city.

In this manner, the research process leading to the comprehensive understanding of liveability in the context of this study was based on the following steps: firstly, an Extensive Checklist of Liveability Attributes, Constructs and Indicators was extracted from the literature; secondly, consulting the opinions of professionals in Shanghai led to the selection of indicators to be assessed in this context; thirdly, these indicators were tested through a field study carried out on

selected street sites in Shanghai. This robust research process can be employed in other similar research studies that aim to link theoretical concepts with their practical implementation in cities.

8.3.3 Implications of urban liveability in relation to human needs

The outlined liveability sub-dimensions at the level of the city in Shanghai (see Figure 8-1) reflect the wider aspects of the natural environment, services and financial possibilities in cities that have been highlighted in the Liveability Agenda for the 21st Century (World Bank, 1996). The list of liveability sub-dimensions in Shanghai deducted through this study is however context-sensitive and captures what needs to be addressed in order to improve liveability at this time and in this context.

Nevertheless, an additional insight of this study is that concerning human settlements, an universal foundation of liveability could be conceived by responding to the existential and safety needs of people - essential human needs conceptualised by Maslow (1943) at the base of his pyramid. Yet, more uplifting and inspiring conditions for liveability in human settlements can respond to the need of the people to belong and can contribute to their sense of self-esteem. This need for belonging and for self-esteem represent subjective aspects which come further up the pyramid of Maslow (1943), and can be historically, culturally and developmentally specific. From here, the highest human need identified by Maslow (1943), that of self-transcendence, can take place irrespective of the external living conditions, and therefore is beyond what liveability can capture, concerning instead each human being's possibilities for advancement and realisation. Addressing this statement, one proof was the capacity of some Chinese people not to allow their inner wellbeing to be affected by external conditions of living. Nevertheless, while the topmost need in the pyramid, that of self-transcendence, does not rely on external conditions, the other needs can be addressed and supported through liveable environments.

In the end, adding to the urgency signalled by the UN documents for addressing liveability issues in cities all over the world, although a liveability fundament to respond primarily to basic human needs could be conceived, for higher-aspiring living conditions it is still the role of urban development professionals to understand the contextual specificities of each site, based on which to bring applicable and transformative liveability measures. It is important therefore to step beyond a superficial endorsement of the 'liveable' attribute in almost every

project, business or written document. Unless the attribute of ‘liveability’ carries the depth and understanding of the specificities of human habitation in a studied context, it does not carry much value.

8.4 Recommendations for the Design and Planning of Liveable Streets

This section provides sequential recommendations for liveable streets in Shanghai and other Chinese contexts, addressed to urban planners and designers, in cooperation with the local or municipal administration.

8.4.1 Synthesized recommendations for S, M, L, XL1 and XL2 streets

On the streets bordered by already mature fabric that do not pose significant threats to liveability (M, L and XL1 sets), this study recommends unobtrusive interventions. In areas with more significant issues concerning the building conditions or utilities (S set) as well as accessibility to daily facilities (XL2 sets), more major interventions are needed.

8.4.1.1 Recommendations for the S streets

Firstly, on the S segments, a general cleaning and sanitising of the public space and living areas need to be carried out. Secondly, historical and structural analyses of the buildings need to be conducted to decide which ones deserve to be preserved and which ones need to be rebuilt. Thirdly, access to private toilets and kitchens equipped with gas should be provided (preferably on an innovative eco-grid). Fourthly, for any new insertions, only low-rise buildings (of 3 to 5 floors) should be approved, and slightly taller buildings only by exception. Fifthly, the human scale and multitude of activities on streets should be preserved by allowing existing businesses to continue their activity, by offering support for new businesses, and by promoting social diversity by not entirely displacing all the original residents.

8.4.1.2 Recommendations for the M streets

Firstly, on the M segments, on-target improvements are needed concerning the utilities and living conditions in unrenovated buildings. Secondly, shared transport means, including publicly-shared bikes, should be promoted more intensely, while adding visual and physical restrictions for cars (car traffic can be

redirected towards other main roads). Thirdly, the plane trees should be preserved and protected, and any consideration for widening the pavements should be carried out without affecting the trees. Fourthly, any new insertions that do not reflect the character of the place should be avoided.

8.4.1.3 Recommendations for the L streets

Firstly, more flexibility in the use of the pavement space should be allowed on the L segments. Secondly, the establishment of small-scale economic activities should be encouraged by providing affordable rentable spaces at the ground floor level of buildings aligned on the streets. Thirdly, sufficiently wide bicycle lanes should be provided, taking land from the oversized roadway space designated for car travel. Fourthly, more trees can be planted wherever the roadway width permits and is currently underused.

8.4.1.4 Recommendations for the XL1 streets

Firstly, on the XL1 segments, the façades of bordering buildings need renovation; a more emblematic façade architecture can be adopted for buildings of public interest (such as hotels). Secondly, small-scale economic activities should be further supported and more space for pedestrians in the proximity of commercial spaces provided. Thirdly, new street furniture (especially seating) should be added. Fourthly, any unused spaces (corners, spaces under bridges) should be improved through creative design solutions. Fifthly, circulation flows in the wider network should be reconsidered and, if possible, one-way roads should be converted to two-way roads (especially on overly-wide roadways), so that traffic volumes do not fluctuate widely throughout the day (and do not have higher speeds).

8.4.1.5 Recommendations for the XL2 streets

Firstly, on the XL2 segments it is recommended to allow open access on all pedestrian alleys within the residential compounds, in order to shorten the walking distances across the residential blocks. Secondly, the public spaces along the street should have unrestricted access for all categories of people, including those from the lower social classes. Thirdly, the remaining narrow segments should be preserved, despite the traffic pressures, while on too wide arteries more street trees and planting strips should be added, to turn the arteries from circulation corridors into boulevards.

Fourthly, temporary structures can be added on the street edge, opening up possibilities for small businesses and services to settle along the streets.

8.4.2 Generalisability of recommendations given for selected streets

Concerning the applicability of the recommendations provided for the analysed sets of streets in other contexts, interplay has been identified between the possibility for generalisation across urban China, and specificity within the Shanghai context, as follows:

The S segments have some Western influences through the development of the *li* compounds. However, housing has been built on a street network with the characteristics of an ancient Chinese settlement. Furthermore, some of the original residential buildings, built before the Concession period, are still in place, although in very poor condition. The recommendations provided for the S segments can therefore serve as an inspiration for other Chinese old towns (especially for Southern Chinese cities such as Suzhou, that do not have the core organised on pre-established grids, as the Northern Chinese cities used to have).

The M streets, which proved to be some of the most successful residential streets in relation to liveability, are highly representative of the area of the Former French Concession in Shanghai. The improvement strategies mentioned could be applied to other residential blocks in former Concessions that have not suffered dramatic changes to their functions or building style.

The L and the XL1 sets are highly representative for urban China. The L segments, being located closer to the city centre, are representative of residential streets bordered by redeveloped blocks with high-rises following modern standards, among other remaining compounds with affordable housing. From the L segments contrasting street characters based on the bordering housing typologies can be understood, which can further inform decisions and interventions in other similar contexts.

The XL1 set is representative of the remaining, affordable work units in Chinese cities. The interventions suggested for the XL1 segments are currently very important, as they could guide improvements concerning the standard of living in work units and on the adjacent streets, without involving mass demolitions (as the main approach has been so far). Unobtrusive interventions are recommended because, as emerged from this study, the streets bordered by early-built work units

aligned to the street edge, where small-scale businesses have been allowed to flourish, were very lively. In such cases, more attention should be given to living conditions in the interior of the housing units, while the exteriors can simply be renovated.

Some of the XL2 streets are more representative to Shanghai because more foreigners live in higher-class compounds, while others are highly representative for urban China. However, considering the overall juxtaposition of the different housing styles and of the different classes of inhabitants, from the given recommendations it can be understood how to respond to the trends of inserting new, 'modern', foreign-inspired high-rise compounds among areas already built in other Chinese contexts.

8.4.3 Recommendations for improving upon the six liveability qualities

8.4.3.1 Recommendations for a Local Humanized Environment

Concerning the humanized environment, several interventions can find immediate implementation:

Firstly, there is an imperative need for a higher number of and more convenient pedestrian crossings. Secondly, the traffic rules need to be amended to better accommodate the needs of cyclists and e-bike riders (prioritising cycling as a transport mode in the city), along with providing appropriately-sized, continuous bike lanes. The provision of creative (off-street) parking infrastructure is also needed for bicycles and e-bikes. Thirdly, more vegetation, pedestrian-oriented lighting and street furniture (seating) should be added on streets.

Other major recommendations for the Humanized environment require long-term planning, and include:

Firstly, besides providing open-access to the main alleys within the existing residential compounds, the adoption of shorter blocks is needed as a strategy for shortening distances to interest points (recommended block dimensions are of 200m x 200m or similar variations, applicable especially if there are no additional alleys with open access for non-motorised circulation through the middle of the blocks). Secondly, there is an acute need to plan narrower roadways and to reorganise the space of the currently oversized roadways (of over 15m). When important arteries (main and secondary roads) enter the inner city, they should gain the character of boulevards and include dense street vegetation. Otherwise, along with appropriately-

sized pavements, the concepts of ‘shared streets’ and ‘complete streets’ with priority for pedestrians, cyclists and public transport should be promoted. Thirdly, it is important to strive for a street environment at human scale, with a good degree of enclosure and transparency of the street edges. Fourthly, a more direct communication between residential areas and the street should be aimed, attainable through shorter setbacks and improved linkage to the street. Fifthly, there should be targeted a higher diversity of frontages, which means encompassing both early-built buildings (pre-1980s, which should be revitalised and integrated into redevelopments) and newer (contemporary) buildings. Sixthly, residential developments organised in mono-functional blocks or gated communities must be limited. In addition, moderate building densities (with a building coverage of approximately 40%-50%) should be aimed, more achievable with mid-rises (of about 6 and up to 8 floors, unless there are traditional areas, where for any new insertions, low-rise buildings of 3 to 5 floors should be prioritised).

8.4.3.2 Recommendations concerning Physical Facilities for Living and the Mix of Uses

Firstly, concerning physical facilities for living, it must be ensured that all the (traditional) residential areas have access to toilets, with proper living conditions and branched to basic utilities. Secondly, access to services and amenities should be provided, including green spaces, education centres, community centres, grocery stores and eating places within walking distance (not longer than 300m-400m) of all residential streets. Thirdly, small-scale mixed use should be allowed and encouraged to settle (horizontally along the streets or vertically within the buildings). Fourthly, the study recommends the planning of active ground floors on residential streets (on a minimum 20% of the street frontage).

8.4.3.3 Recommendations concerning Local Economic Activities

Firstly, micro-businesses should be encouraged on residential streets, especially through incentives such as affordable rents. Secondly, training and know-how support should be offered to small entrepreneurs. Thirdly, ambulant vendors should be allowed on the streets under established public health guidelines and stall placement permits. Fourthly, any form of large-scale commercialisation should be avoided in the inner city (in the case of Shanghai, the Inner Ring Road area). Fifthly,

planned strategies should be devised to connect streets that have (small-scale) commercial potential.

8.4.3.4 Recommendations concerning Social Interaction and Public Life

Firstly, more flexibility should be given in term of the use of public space, allowing unpredictable activities to take place (as well as further allowing people to expand some of their domestic activities to the space of the street). Secondly, to avoid conflict in the use of the street space, more options regarding open spaces that can accommodate diverse human activity should be provided. In addition, empathy among different classes and groups of people needs to be promoted. Finally, large-scale displacement of residents should be avoided, to allow the formation of closer social ties.

8.4.3.5 Recommendations concerning the Sense of Place and Belonging

As a priority, the cleanliness and sanitation on residential streets needs improvement. Furthermore, while the display of products on the façade or close to the street can be allowed, it must be ensured that the street space is neat after conducting any type of activity (this applies to both the residents and the shopkeepers). Secondly, any design or planning intervention should respect the people's lifestyles, while in mature urban fabric, improvements should be implemented gradually and in an unobtrusive way. In addition, in the process of design and planning, involvement of the grassroots should be encouraged in decision making. Thirdly, the traditional way of living should be encouraged while cultural specificities and traditional philosophies can be revived (through educational and cultural programs).

8.4.3.6 Recommendations concerning Safety on residential streets

Safety on Shanghai streets did not emerge as being very problematic. Nevertheless, interventions that could improve safety even further are related to what has already been prioritised to some of the other liveability qualities (see sections 8.4.3.1, 8.4.3.2, 8.4.3.3, 8.4.3.4, 8.4.3.5) . In this way, safety from traffic hazards could be improved, firstly through improved pedestrian connections; secondly, through a better consideration of the needs of all roads users (especially those of cyclists and e-bike riders); thirdly, through narrower segments that allow eye contact between pedestrians and vehicle users.

To achieve an improved safety in living, prioritised interventions include, firstly, allowing activity of small shops on the street, and building with shorter setbacks in order to have more people watching the street on a continuous basis; secondly, allowing flexibility in the use of the street to accommodate more human activity; thirdly, limiting developments in gated communities and promoting more inclusive places that allow the formation of tighter social connections.

8.5 Implications and comments for policy and practice

This section sets out the implications for policy and practice concerning liveability interventions. They are addressed to policy-makers and urban development professionals.

8.5.1 Addressing vulnerable liveability qualities at the street level

Currently in Shanghai, concerning the six identified liveability qualities, more attention in terms of urban policy-making needs to be given to the liveability qualities that the research found to be vulnerable, and which are widely related to social capital. In this manner, as the city develops, despite the pressures of the real estate market, it is crucial to provide possibilities for various uses, incomes, and economic and social activities to spring up on residential streets. As deduced from this study, it is the combination of people, functions and spontaneous activities that generate and maintain liveliness, through creating an atmosphere of excitement and continuous motion. Liveliness is an important component of liveability and emerges when the more subjective liveability indicators –under the qualities of Social Interaction and Public Life, Sense of Place and Belonging, and Safety – are satisfied. For the overall advancement of liveability standards however, all six liveability qualities need to be well balanced (including the more objective qualities of Local Humanized Environment, Physical Facilities for Living and the Mix of Uses, and Local Economic Activities). Furthermore, to verify the progress of liveability at the level of the street in Shanghai, the study recommends referring to the prioritised sub-qualities under each of the six liveability qualities (see Table 8-1).

8.5.2 Socio-cultural elements to guide liveable street interventions

In Shanghai and other emerging cities in China, urban development professionals should pay close attention to the activities and the cultural understanding of the street, in order to incorporate these observations into their urban planning and design proposals. For instance, some of the elements that generated the highest sense of pride among residents (historical sites, special architectural features, special street trees and dense vegetation) can be regarded as guidelines when planning and designing new developments, as they enhance the aesthetics and the image of the city, which were considered of importance by the professionals in this study. Similarly, interventions addressing liveability in different types of residential areas inhabited by different social classes can be guided based on the understanding that human activity on urban streets is affected by elements of the physical environment and population density, but also by social relations, free time and lifestyle.

In addition, the positive aspects of population density, stronger social ties, and people's ability to adapt should be valued as they spring harmony and liveability on residential streets in China. In this regard, with the use of unobtrusive design interventions, it is important to allow enough time for people to respond to change. At the same time, the input of residents to design interventions should be encouraged.

8.5.3 Morphological categorisation of streets for targeted interventions

In order to adopt targeted policies for liveable streets in Shanghai (and in other Chinese cities), this study recommends categorising different types of streets based on their morphological characteristics. This study has used the categories of S, M, L, XL1 and XL2 streets, identified within the Inner Ring Road area in Shanghai. This categorisation has established a framework for intervention, correlated to the six liveability qualities identified at the level of residential streets. For the expanded Shanghai municipality, these morphological categories of street can be complemented with other street types encountered outside the Inner Ring Road.

Morphological categorisation can be adapted in addition to the hierarchical street planning in China and to other categorisations based on street functions. For streets bordered by housing buildings (termed 'residential streets' in this study, see

Chapter 3, section 3.3.3, page 81), the additional categorisation based on their morphological features facilitated a more comprehensive understanding, encapsulating a three-dimensional overview and a qualitative consideration of the street environment. Ultimately (within a defined morphological categorisation), the three-dimensional environment of residential streets can still encompass different transversal profiles and varying physical details. However, the qualitative features (human scale, enclosure, transparency of street frontages) should be primarily respected for comfortable street environments that invite human activities.

8.5.4 Approach to opening access to gated communities

In the response to the directive put forward by the Ministry of Housing and Urban-Rural Development (MOHURD) in 2015 (to provide open access from the public throughway to gated communities), a primary aim should be to achieve an inclusive space of the street, that is not superficially beautified but socially diversified. Procedurally, this implies firstly observing the patterns of how the street spaces are personalised by residents with furniture, music and other elements suiting the human activities on the street, and secondly, by involving residents more in design proposals. Nevertheless, there is no universal design approach that can be adopted when joining the alleys within existing gated communities to the public space of the street, and this will therefore have to be worked out through contextual design experiments.

This study indicates that the first attempts to provide open access to the gated communities should be conducted on the XL2 streets. For such lengthy segments organised along superblocks, as part of a sequential design intervention, a first step would be to make the residential compounds more permeable by unlocking and keeping the entrance gates wide open. A second step would be to add vegetation and to improve the public space along the street (by making it more inviting), while marking the alley entrances to make them recognisable from the street. From this point onwards, depending on the on-site observed need, as well as on the land tenure and rights of use, detailed design proposals can be advanced.

Concerning new developments, while avoiding gating the communities, there can be experimented with building shorter perimeter blocks, enclosed by buildings on all sides (including small commercial buildings adjoining the south-oriented residential buildings) but allowing multiple openings from the street. This would

result in buildings aligned to the street edge, with potential for commercial ground floors, in environments at human scale, with higher permeability and improved street life.

8.5.5 Interdisciplinarity and cooperation for liveability

The services of foreign architects and foreign designers can be employed to produce creative design proposals and conduct research, and to learn about previous experiences in non-Chinese contexts. Finally however, as any design will have to consider closely the lifestyles of those who are going to inhabit the area, surveys with residents will have to be conducted in their native language. Nevertheless, the study has found that, besides emerging contradictions, inhabitants did not always have a clear vision of the larger context, and could not always express exactly what they wanted. An example was the wish for widening the roads to release congestion, despite previous experiences having proved the opposite to be true. Another example was the residents' wish to not open the gated compounds to public access due to untested safety reasons. Urban planners therefore need to see beyond the literal dissatisfactions and contradictions of residents, while seeking the most advantageous solutions to counterbalance the liveability factors.

What is more, as professionals with different disciplinary backgrounds also had different points of view in relation to the street environment, when tackling the liveability issues in urban areas interdisciplinarity is necessary. In addition, government representatives need to improve their communication with researchers and practitioners (as well as considering the opinions of residents when making decisions), in order to reach optimal solutions.

8.5.6 The timeframe of planning for liveability

When planning for liveability, it is necessary primarily to have a clear understanding of the current situation in a given context, as by trying to solve future, imagined issues, what is needed at present gets ignored and the results are neither useful for the present nor for the future. However, by accurately responding to present challenges, future issues might also dissipate.

An example of an unsuccessful effort to anticipate and accommodate future traffic and development needs is found in the recent developments in Pudong New Area of Shanghai (see the XL2 streets in this study). It has oversized roads, but also

overly wide pavements, resulting in overly widened transversal street profiles, not used to their full capacity; buildings are situated at large distances from one another, resulting in environments at an automotive scale, that neglect human scale. These segments were even less lively than those planned in Pudong in the 1970s under socialist principles (such as the XL1 streets in this study). Furthermore, other streets, planned more than 100 years ago, still preserved the charm of their time and retained the memory of place (such as the M streets in this study). The people still enjoyed living on these older streets, especially where facilities have been upgraded, and as a result, the streets were full of life.

It is true, however, that the unsuccessful street environments within the recently built areas in Pudong have had less time to adapt. An optimistic scenario includes the possibility that the Chinese, being numerous but also resourceful and innovative, will be able to adapt the built environment in Pudong according to their needs, if given enough time and if the local administration would refrain from imposing rules on land-uses and activities that are too strict. This is an additional reason why street life should be allowed to flourish organically, with flexibility in the way the street is used. Otherwise, spaces that are too rigidly planned have less chance to successfully ensure a comfortable and liveable environment.

Furthermore, in contrast to the most recently built areas in Pudong, which have been developed through a top-down approach, in the old areas (S and M areas in this study) the buildings have been built following a bottom-up approach (with the involvement of grassroots), with smaller building footprints and functions that have been adapted over time. These old areas are not comparable with the newer developments in terms of living facilities, but, considering their human scale and the richness of activities, they have successfully passed the test of time.

Although liveability depends on many spatial factors (as demonstrated throughout this study), an additional, critical aspect of the ever-changing understanding of liveability is, therefore, the dimension of time. That is why, to enable a timeframe of planning for liveability, the recommendation of Madanipour (2007) can be considered, that is, to plan and design according to the time in which we live, not with rigid features but with a certain degree of flexibility, allowing adaptability over time.

8.5.7 Policy implications when pursuing liveable cities in China

Firstly, by scaling-up some of the interventions suggested for liveability at the level of the street, several issues at the level of the city in Shanghai could also be addressed. For instance, more green spaces along the street could partly address the pollution and micro-climate conditions, and, if these green spaces would offer the public unrestricted access, they would also have social value. Furthermore, in order to improve liveability in Shanghai, the highlighted liveability sub-dimensions advanced through this study should be regarded as guidelines (see Figure 8-1).

A further insight is that, while Shanghai's economic development has reached an advantageous stage that allows prosperity and the provision of a decent living for the majority of its residents (especially when the legal and administrative issues impeding the renovation of the Old Town are solved), more emphasis is needed on improving and respecting the conditions of the natural environment (reinforcing the recommendation of Wang, Zhu & Zhang, 2011), without losing the vibrant social environment. Furthermore, social vibrancy and economic prosperity are, at the level of the street, in a relationship of mutual reinforcement; similarly, at the level of the city, they could be considered as concurrent, and as strengthening, rather than conflicting with each other (reinforcing the argument of Douglass, 2002b).

Thus, in Shanghai, at the level of the city, the conditions of the built environment can be improved while maintaining the social capital formed, without altering the natural environment. Finally, every action towards liveability in Shanghai will have to be carried out in cooperation with governance.

8.6 Limitations and challenges of research

Several limitations and challenges were encountered when conducting this study; how they were surmounted is presented in the following subsections.

8.6.1 Limitations to the overall research design

In the first place, the study has conceptualised an additional methodological procedure, meant to cover the limited understanding of the local language, for which the consultation of an even wider Chinese literature was not possible. This additional procedure, developed as a survey of Shanghai professionals, revealed valuable

findings on how liveability is conceptualised and practiced in Shanghai, and informed the definition of liveability in a Chinese context.

8.6.2 Limitations to the selection of street sites

One limitation to the study's street site selection consisted primarily of the fact that the streets chosen could not be, in reality, ideal for a comparative study. This is because the selected segments did not have constant differences in the traffic volume bands across the different sets, were not bordered by totally uniform housing typologies within the sets (see especially the XL2 set), did not all have the same length within each set (see for instance the S set), and were not all intersected by the same roads at the end of the segment (see S and M sets). Furthermore, necessary adjustments were needed to the traffic labels as the study advanced and more detailed traffic counts were carried out (see XL2 set). Moreover, the bordering housing compounds were not ideal representatives of the historical period of development of the selected streets and of the overall morphological areas to which they belonged, due to later interventions (see the L set) or to reminiscent, earlier-built housing among wide, reconstructed areas (XL2 set). However, the chosen sites illustrated real streets and, besides their high generalisability in the context of Shanghai, some of them had a high generalisability for other urban areas in China. Furthermore, having a relatively high sample of streets (fifteen) meant that the objective of the field study was reached and the conclusions that have been drawn were well-informed.

8.6.3 Limitations to the study with professionals

The limitations to the survey of professionals include several aspects. One aspect concerns the different instruments applied for data collection; at first, a self-administered online survey was employed, followed by interviews via email, Skype interviews and face-to-face interviews to supplement the survey responses. Another aspect concerns the relative low number of academics and developers who took part, as well as the government officials missing from the study. Furthermore, some of the professionals in the study were not based in Shanghai at the time of the study; however, they had professional experience and knowledge about the context of Shanghai. In the end, the purposes of the survey - with professionals complementing and confirming the information deducted from the literature review and at the same

time informing the understanding of liveability in Shanghai prior to the field study on selected street sites - have been achieved.

8.6.4 Limitations and challenges to interviews with residents

One of the first limitations encountered in the interviews with residents was their different attitudes towards being interviewed - while some responded willingly, others were in a rush but prepared to give short answers to questions, and others refused to take part. Another limitation lay in the fact that more middle-aged and senior people were interviewed, as these age groups were more accessible. However, the opinions of the younger generation have also been captured, although are not so great in number.

Another limitation lay in the fact that the respondents' exact place of living was not determined, as many were approached for interview on the street. Some respondents could have been living closer to and others further from the street. A further challenge encountered was that on several streets, especially on the segments aligned with higher-class compounds and fewer people on the street (for instance on Xietu Road, Mengzi West Road, L set, Pucheng Road, XL2 set), the guards did not allow access to the compounds to conduct interviews with the residents. The strategy here was to wait for potential subjects at the compound gate or at bus stops, until the minimum number of interviews required for each segment had been reached. Another research challenge when conducting interviews was that, when asked about general problems with their streets, many respondents did not indicate in the first instance any negative facts: they were either unconcerned with any issue or did not want to speak about them. However, when asked more particularly about issues with traffic, facilities or safety, some of the respondents started to state their opinions in more detail.

A further limitation lay in the fact that some of the activities mentioned (especially in the structured interviews) were sometimes carried out within the compounds or inner alleys, not only on the public street. A resulting ambiguity in the answers happened because the Chinese terms of '*lu*' and 'jie' (路, road; 街, street), are generic terms that can be used colloquially to refer to different types of street. In such cases, additional explanations were given for clarification. Furthermore, the location of the activities mentioned could often be understood from the respondent's

gestures indicating a certain place, or from the points of reference that were occasionally mentioned.

Moreover, in the responses to the structured interviews, although the aim was to differentiate between friends and relatives on one hand and acquaintances on the other, some respondents considered most of their acquaintances to be friends (indicating they had same number of friends as acquaintances), while others made a clear distinction between the two categories. Results obtained about the number of friends and acquaintances from the current sample are thus not illustrative enough to come to a conclusion on the nature of the social relationships formed across different streets. A more in-detail study on this specific matter is required, preferably with a larger population sample. Nevertheless, the answers were illustrative enough to enable a conclusion about whether social relationships were being formed on the streets.

In addition, many subjects refused to complete the three drawing questions. However, after encouragement, enough responses were obtained on each segment to conduct qualitative analyses. Furthermore, as part of the answer to the first two drawing questions regarding home territory and the location of friends and acquaintances, some respondents encircled the name of their compound or the name of the street, without an accurate spatial delimitation on the map. Nevertheless, the basic relationships between home territory and the location of friends in relation to the street could be understood. For the third drawing question concerning the way the subjects pictured their street, most of the respondents opted to write several words rather than making simple drawings. However, the written words were also illustrative of the residents' memory of the place.

Furthermore, I did not participate in the structured interviews conducted on the selected streets, the main reason being that some took place concurrently on different streets. However, a positive side to this was that not being present as a foreigner to the structured interviews, some respondents revealed more troublesome issues than they might otherwise have done, and perhaps more honest assessments have been obtained.

Finally, another limitation to both the semi-structured and the structured interviews lay in the fact that, due to the language barrier, capturing a sense of absolutely all the feelings and perceptions of residents was unachievable. Translating residents' answers might also have induced an unavoidable interpretation of

meaning, despite several validation procedures having been followed to reduce the translation bias (see Chapter 3, sections 3.8.4, 3.8.5).

8.6.5 Limitations to systematic observations

The first limitation to the design based on the method of systematic observation consisted in the fact that some of the segments were lengthy and 15 minutes of observation time to map activities was not always enough to walk from one side of the segment to the other. At times therefore, riding a bicycle was used as an alternative option to walking, stopping to map human activities where encountered. Furthermore, the exact temporality of the activities has not been captured in mappings, although the activities recorded were meant to take place for longer than one minute. On some streets however, other activities took place for more than 15 minutes and these differences affected the dynamics of the street in a way that is not visible in the mappings.

A second limitation resided in the fact that the measurements on streets and pavements have been approximated by sight and by the number of steps taken, without using an accurate measuring tape or a measuring laser. However, the on-site measurements have been verified with measurements on Baidu maps (2016).

A third limitation lay in the manual counting of traffic volumes after the initial selection of street sites, as the Motorola Moto G with the Traffic Survey application was no longer available for this research. Furthermore, the results of traffic counting should be considered representative only for the actual recording times, and the resulting values of PCE/h should only be taken as indicative. To capture the detailed fluctuations of traffic between different moments of the day or week, detailed traffic counting needs to be conducted, based on sensors and camera recordings. In addition, for more exact values of PCE/h, detailed engineering calculations specific to the site conditions of each segment should be made.

A fourth limitation was in the fact that photography sometimes made people aware of the presence of a foreigner observing them. Some, especially those carrying out illegal activities on the street, were concerned about being photographed in their surroundings (see also ethical considerations, Chapter 3, section 3.7.1). For this reason, additional caution was taken when observing the streets and when taking photographs, in order to not interrupt the normal pattern of activities.

A fifth limitation lay in the restricted access of foreigners in China to archives and historical plans. For this reason, the following could not be accessed: traffic accident statistics (to carry out a quantitative analysis regarding safety from traffic); databases of the registered economic and business activities on the street, or official records of the available facilities; exact records of redlines; records showing the exact year of construction of the buildings. Safety from traffic, economic activities and facilities have therefore been analysed based on defined qualitative indicators using the observation method. Similarly, the historical period of construction has been estimated based on the characteristics of the buildings observed during site visits. Finally, the accessible uses and services described are indicative of the moment when observations were carried out, taking into consideration the dynamic changes to the profile and the availability of small shops on Shanghai streets.

8.7 Justification of the approach used

For the empirical study on selected street sites, systematic observation was an excellent method for the close understanding of the relationship between an urban space and the people that use it. It was also a suitable method for defining the particularities of each street site, which was especially needed in the Chinese context where the streets proved to be more diverse and lively than in other international, especially Western, contexts. For this reason, the distinctive characteristics of Chinese streets could not have been captured only through macroscale analyses of wider geographical areas (which show, for instance, general mobility trends at the level of the city). Similarly, specificities could not have been captured only through computer-based analyses of big data that reduce the richness of street life to general patterns of activities.

Accordingly, in this study, based on the diverse tools of data collection and analysis employed through the method of systematic observations, it was possible to outline and represent the specific details of each street environment. At the same time, the deeper aim of the thesis was to penetrate beyond the representation of the exterior conditions in which life was carried on, to capture in addition the depth of living on different residential streets in terms of the experience of the residents. For this, exploratory semi-structured interviews and explanatory structured interviews

were employed, which revealed the motivations that triggered certain behaviours in the space of the street. Thus, the full picture of how life is evolving on the selected streets in Shanghai was discernible only when the responses to interviews and the systematic observations were considered conjointly.

Moreover, the analysis of selected streets and the relationship of the people with their living environments have been complemented by the theoretical understanding of liveability from the perspective of concerned stakeholders and from the relevant literature, which led to an overall understanding of the broad concept of liveability. In this way, this research based on combined research strategies and on multiple levels of analysis, with the contribution of multiple stakeholders, led to the definition of liveability in Shanghai and to informing design and planning for liveable streets in this context.

Finally, making the analogy between the liveability understanding and a ripe fruit, the field study of selected street sites represents the seed. However, to reach the seed, the theoretical study with professionals had to be conducted first, to extract the parts that were the most important to analyse in relation to the main research question. In this scenario, the literature review (associated with the skin of a ripe fruit) helped in becoming familiar with the large sphere of liveability knowledge.

8.8 Future Research

The study recommends that future, comprehensive studies on liveable streets are conducted in other Chinese contexts, especially in contexts which have experienced fewer Western influences in the historical development of the city and in the architecture and urban design practices. Furthermore, the newer peripheral residential developments in Shanghai with new housing typologies (such as the recently built KIC Village), which were not mature and not fully inhabited at the time of this research, could well be considered as the subject for future liveability studies.

What is more, not only can the behaviour of different income groups be studied in a closer detail on residential streets, but also behavioural differences across social groups of different provenance (including native residents, migrant workers, foreigners established in the city). Studies cold also examine in more detail to what extent living in buildings facing the street compared to living in buildings

located in the middle of residential compounds might affect residents' perception of liveability.

Another potential subject for study is how the extensive use of new technologies providing extra-accessibility and information are affecting activities taking place on the street. In this regard, it is especially interesting to understand the needs and the expectations that the younger generation have of public spaces and how internet accessibility in public spaces might affect social interaction.

Furthermore, micro-level studies can be carried out on residential streets in Shanghai, to research in closer detail the relationship between types of open space along the streets and the human activities taking place there, in order to find out the most suitable materials and most suitable disposition of furniture elements to support the human activities. Further potential subject of study could be the functional and psychological effect on the behaviour of pedestrians and cyclists of the separating fences on the streets, compared with the possibility of having more shared and complete streets.

It could also be tested whether providing open access from the street to the gated compounds (as a response to the MOHURD directive) would generate authentic open spaces in the Chinese context, and research can be conducted to determine to what extent this affects social life and liveability on streets in China. In addition, an investigation could examine whether and to what extent the social needs of Chinese citizens have been repressed throughout history by the warding system in China, and whether there are any established safety reasons for this.

A further possible area of study could be the extent to which air quality and other micro-climate factors influence activities taking place on the streets and in other open spaces in Shanghai and other Chinese cities.

The progress of Shanghai should also be monitored, in relation to the six liveability qualities defined through this study, and over time, the fulfilment of the prioritised sub-qualities under the six liveability qualities at the level of residential streets in Shanghai can be reassessed. The applicability of the six liveability qualities for the context of other emerging cities in China could also be researched through comprehensive and detailed empirical studies.

Finally, it should also be attempted to involve governors and policy-makers further in liveability studies in order to reveal the way liveability is practiced and conceptualised from their perspective. In addition, in the view of the rapid

development currently being experienced in Chinese cities, the priority of the liveability sub-qualities and the applicability of the liveability sub-dimensions can be reassessed.

8.9 Overall contribution to research knowledge

In the first place, the contribution to knowledge of this dissertation lies in defining liveability through a comprehensive framework of six liveability qualities at the level of residential streets in Shanghai, based on the integrated consideration of empirical and theoretical research. An additional contribution lies in correlating the qualities of liveability at the level of residential streets and the understanding of liveability at the level of the city in Shanghai. Furthermore, the study has prioritized sub-qualities for liveability at the level of the streets, and outlined liveability sub-dimensions that can potentially inform planning for liveability at the level of the city in Shanghai. These contributions constituted the achievement of Research Objective I in this study (see section 8.1). Furthermore, based on the findings to particular liveability factors at the level of the streets, recommendations for the design and planning of liveable streets in Shanghai have been channelled. The value of the social life on the smallest streets in Shanghai emerged and recommendations have been given for preserving and building street environments that are conducive to flourishing street life. These contributions constituted the achievement of Research Objective II in this study (see section 8.1).

Additional contributions to research knowledge consist in the deduced theoretical implications of this study, concerning: the recognition of differences and similarities between liveable streets in a Chinese context, compared to liveable streets in other international contexts; the research approach based on a framework of indicators that linked the conceptualisation of liveability to its practical implementation; and the meaning of liveability in human settlements.

Other contributions to research knowledge are relevant especially in the context of Shanghai and other Chinese cities, concerning: the demonstrated effectiveness when using a morphological categorization of urban streets for targeted interventions; and the insights provided concerning the timeframe of planning for liveability in Chinese settlements.

8.10 Concluding Remarks

This study has defined the meaning of liveability at this time in a Chinese spatial context.

In the process of determining liveability on residential streets in Shanghai, this study has given consideration to the physical and morphological characteristics of streets (a result of the multiple development influences in the history of the city), to traffic characteristics (considering the growing road widths in China and the issues among the road users), to the functional distribution of uses and economic activities (in relation to the tendency for large-scale commercialization and mono-functional developments), and to socio-demographic characteristics (and the socio-psychologic perceptions of different categories of inhabitants).

The study revealed many potential conflicts: between different functions of the street (as a social place and as a circulation corridor), between different uses of the street space (domestic versus non-domestic), between different perceptions concerning the human activities suitable to take place on the street, and between the residents' experience of living on the street and the conceptual opinions of concerned professionals.

Surmounting all the conflicts was the emergent need to conceptualise the street as an inclusive space (from a socio-psychological perspective), a three-dimensional space (from a physical perspective), a dynamic space (from a socio-economic perspective), a space that needs to be well-managed (concerning governance and administration) – all of these atop the sustaining natural environment.

Accordingly, at the level of residential streets in Shanghai, the determined qualities that define liveability are: the Local Humanized Environment; Physical Facilities for Living and the Mix of Uses; Local Economic Activities; Safety; Social Interaction and Public Life; and Sense of Place and Belonging. To inform specific interventions, prioritised sub-qualities have been identified within each of the qualities that define liveability on residential streets in Shanghai. A nested relationship has also been determined between the six liveability qualities on the street and the liveability dimensions in cities (the Environment, Social Dimension, Economy, Governance), through various sub-dimensions.

However, in the continuously metamorphosing urban space in Shanghai (along with people and places that evolve), and considering that liveability is a long-lasting pursuit, the definition of liveability might as well need to be remodelled and upgraded, while the street performances on liveability qualities will have to be regularly reconsidered. However, by functionally responding to what is needed at the present moment and by valuing and celebrating the physical and socio-cultural specifics of Shanghai streets, liveability can be improved.

Ultimately, the liveability paradigm with its anthropocentric focus, is linked to human needs. Liveability is thus concerned with both individual preferences which form subjective perceptions and with ensuring suitable living conditions in human settlements. It therefore includes objective aspects that ensure people's basic needs (existential and safety needs) and additional subjective aspects (social aspects, a sense of belonging and self-esteem). Due to these subjective aspects, understanding of liveability can vary based on the culture of the people; however, essential human needs remain the same across human settlements in various contexts.

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APPENDICES

Appendices A – to the Literature Review

Appendix A1: Dimensions of liveability - in the world and in China

Table 1: Liveability dimensions employed at the city level across the world

Researchers	Smith, 1973	Omuta, 1988	Kearns et al., 2000	van Kamp et al., 2003	Holt-Jensen, 2001	Throsby, 2005	Wheeler, 2001:2013	Visser et al., 2005
Dimensions	1.Economic status 2.Environment 3.Health 4.Education 5.Social disorganization 6.Participation and equality	1.Employment 2. Housing 3.Amenities 4.Nuisance 5. Socio - economic dimensions + 6. Education	1.Housing 2.Crime/ environment 3.Health 4.Education 5.Labor Market 6. Poverty	- Desires relating to the physical environment (food, water shelter) - Desires relating to personal and community development (recreation, leisure, social networks).	1.Aesthetics of the living environment 2. Personal 3. Social relations 4. Functional	<u>Tangible:</u> 1. Public infrastructure 2. Public space 3. Transit 4. Air quality 5. Water quality 6. Education 7. Health 8. Sanitation 9. Disposal <u>Intangible:</u> 10. Sense of place 11. Local activity 12. Well established social network	1. Healthy environment 2. Decent 3. Housing 4. Safe public places 5. Uncongested roads 6. Parks and recreational opportunities 7. Vibrant social interaction	1. Housing 2. social environment 3.Physical environmental 4. Functional
Source	in Saitluanga, B., 2013	in Saitluanga, B., 2013;	in Saitluanga, B., 2013	van Kamp et al., 2003	in Leby & Hashim, 2010	Leby & Hashim, 2010	Wheeler, 2001:2013	in Leby & Hashim, 2010

Table 2: Liveability dimensions employed at the city level in Asia

Researchers	Heylen, 2006	Saitluanga, 2013	Douglass, 2002b	Leby and Hashim, 2010	Wang et al., 2011	Tilaki et al., 2014	Huang, 2008
Dimensions	1. quality of the dwelling 2. physical location quality 3. functional place quality 4. safer places	1. Economic 2. Social 3. Household 4.Accessibility + 5. Satisfaction from the socio-economic environment 6.Satisfaction from physical to infrastructural environment dimensions	1. Health and education 2. Income, self-esteem and personal fulfilment 3. Safe and clean environment 4. Good governance	1. Social 2. Physical 3.Functional 4.Safety 5. Housing	1. Social progress; 2. Living level; 3. Environmental quality; + 'global city' concept	1. Built Environment; 2. Safety; 3. Public Participation; 4. Tourist satisfaction; 5. Heritage Area	1. Community identity 2. Place-making 3. Historical preservation 4. Urban ecology
Source	in Leby & Hashim, 2010	in Saitluanga, 2013	Douglass, 2002b	Leby & Hashim, 2010	Wang et al., 2011	Tilaki et al., 2014	Huang, L., 2008

Table 3: Liveability dimensions employed at the city level in China

Researchers	Liu & Wang, 2013	Wang, Zhu & Zhang, 2011	Yuan, 2005	CASS, 2014	Fulong Ma, 2007	Zhao, 2007
Dimensions	See liveability as involving: 1.Georgraphy 2.Urban planning 3.Sociology 4.Ecology 5.Architecture	1.The Economy (as basis) 2.The Environment 3.The Social 4.The Governance (three sustaining pillars)	1.Economic development 2. Social harmony 3. Amenities	1. Economic friendliness 2. Improving residential environment (including Quality of population, Infrastructure, Housing environment)	-Level of infrastructures and facilities -Quality of physical, social and psychological environment - Personal needs and values of man	1. Historical background 2. Economy 3. Culture 4. political
Source	Liu & Wang, 2013	Wang, Zhu & Zhang, 2011	Yuan, 2005	In Shenzhen Daily, 2014	Ma, 2007	Zhao, 2007

Table 4: Liveability Indexes used by Chinese scholars and research institutions (extracted from Liu & Wang, 2013)

Researchers	Ren Zhiyuan	Li Liping	Li Xueming	Liang Wenzhao	Liu Yungang	Deng Xiaofeng	Hao Zhiying
Dimensions	- urban economic development -urban infrastructure -urban social development -urban culture construction - urban environmental quality	- degree of social civilization -degree of economic prosperity -degree of beautiful environment -degree of resources bear ability -degree of convenience life - degree of public security	-cultural environment -secure environment -living environment -economic environment -ecological environment	- urban living conditions - urban ecological environment - urban economic level - urban social culture -urban infrastructure	- living safety - living conditions - affluence - convenience - comfort	- degree of safety - degree of comfort -degree of happiness -degree of convenience -degree of development	- urban economy -urban construction -social environment
Source	in Liu, Wang, 2013-	in Liu, Wang, 2013	in Liu, Wang, 2013	in Liu, Wang, 2013	in Liu, Wang, 2013	in Liu, Wang, 2013	in Liu, Wang, 2013

Appendix A2: Attributes of liveable streets - in the world and in China

Table 5: Relevant attributes for liveable streets and liveable communities in the world

Researchers	Jacobs, J., 1961:1993	Appleyard, 1981	Bosselmann et al., 1999	Vergunst, 2003	Clayden et al., 2007	Jan Gehl, 1987:2011
Attributes, constructs, indicators	1. mixed-use 2. safety 3. social life 4. sidewalks//street life 5. density 6. local economy	1. traffic hazard 2. stress (including noise and air pollution) 3. social interaction 4. privacy and home territory 5. environmental awareness 6. mobility	1. traffic hazard 2. stress (including noise and air pollution) 3. social interaction 4. privacy and home territory 5. environmental awareness 6. mobility 7. density	5 variables: 1. local inhabitants 2. community life 3. service level 4. local economy 5. physical location	1. safe street environment 2. social interaction 3. soft modes of travel equal status with motorized users 4. sense of pride	1.compact city structure 2.reasonable density of population 3.acceptable walking and cycling distances 4.quality of space 5.no dominance of car+slower traffic 6. 'soft edges' to the public space 7. activities in plinths
Source	Jacobs, J., 1961:1993	Appleyard, 1981	Bosselmann et al., 1999	in Leby & Hashim, 2010	Clayden et al., 2007	Jan Gehl, 1987:2011

Table 6: Relevant attributes for liveable streets in China

Researchers	Cha et al., 2014	Qin et al., 2003	Zhao, 2007	Shanghai Street Design Guideline, 2016
Attributes, constructs, indicators	1. compact blocks 2. narrower streets 3. various new and old buildings 4. street greenery 5. respecting the culture of the people 6. considering the ecological environment of the street 7. moderate building density, moderate population density	1. traffic control 2. open space connectivity 3. safety from traffic and in living 4. walkability 5. mix of uses	1. traffic control 2. spatial comfort 3. walkability 4. street greenery 5. improved public spaces along the street	1. orderly traffic 2. non-motorized priority 3. walking space for pedestrians 4. safe crossings 5. continuous bicycle lane 6. reliable facilities 7. resource efficiency (of land and street space) 8. green transport 9. ecological planting 10. green technology (control rainfall runoff) 11. mixed-use functions 12. comfort activity zone (street furniture that meets the activity needs) 13. pleasant space 14. rich vision experience 15. street characteristic 16. history inheritance 17. facility integration 18. transport aid 19. smart monitoring 20. convenient information interaction (information exchange system on streets) 21. smart environmental stewardship
Source	Cha et al., 2014	Qin et al., 2003	Zhao, 2007	Shanghai Street Design Guideline, 2016

Appendices B – to Methodology

Appendix B1: Traffic counts for the selection process of S, M, L, XL streets

Table 7: Traffic counts on S streets

Nr. Crt	"S" streets	Traffic vh/5min						Traffic (ve/h)
		C	M	Bu	Bi	Gv	O	
1	Yingxun Road	1	1	0	14	0	1	72
2	Penglai Road	10	4	0	62	1	3	411,6
3	Xianmianci Street	0,5	0,5	0	6	0	0,5	32,4
4	Wenmiao Road	1	2	0	22	0	0	98,4
5	Menghua Street	0	2	0	23	0	1	96
6	Caojia Street	0,5	0,5	0	13,5	0	0	56,4
7	Menghua Street (E from Caojia)	1	1	0	20	0	1	93,6
8	Liujiang Street	0	0	0	4	0	0	14,4
9	Xicangqiao street	0	4	0	11	0	0	54
11	Penglai Road (W of Henan Road)	1	5	0	46	0	3	213,6
15	Guangqi South Road (north from Penglai)	0	2	0	22	0	2	98,4
16	Xitangjia Alley	0	0	0	24	0	0	86,4
17	Ninghe Road (north from	0	0	0	23	0	1	88,8
18	Qiaojia Alley (E from Guangqi)	1	2	0	61	0	1	244,8
19	Yujia Alley	0	0	0	3	0	0	10,8
20	Guangqi Road (near	1	3	0	59	0	0	235,2
21	Ninghe Road (near Shangwen Road)	1	3	0	33	0	1	147,6
22	Wangyun Road	0	2	0	33	0	0	126

Table 8: Traffic counts on M streets

Nr. Crt.	"M" streets	Traffic vh/5min						Traffic (ve/h)
		C	M	Bu	Bi	Gv	O	
1	Jiashan Road	17	3	0	47	1	1	426
2	Fuxing Road	85	9	0	70	2	0	1376
3	Yongkang Road	2	2	0	24	1	1	159,6
4	Taiyuan Road (north segment)	33	3	0	28	3	0	615,6
5	Taiyuan Road (south segment)	51	2	2	43	0	0	846
6	Jianguo Road	36	8	1	37	0	0	630
7	Wulumuqi Road	57	9	2	66	1	2	1074
8	Anting Road	7	1	0	18	0	0	152,4
9	Gao'an Road	28	4	2	36	0	1	558
10	Jianguo Road (before Gao'an)	35	11	1	66	0	0	733,2
11	Shaanxi South Road	82	5	4	60	2	3	1452
12	Shaoxing Road	23	0	0	12	0	0	319,2
13	Yongjia Road	40	3	0,5	49	2	4	781,2
14	Xiangyang Road	44	8	0	50	0	1	742,8
15	Jianguo Road (near Jiashan)	60	3	1	60	1	0	1019

Table 9: Traffic counts on L streets

Nr. Crt.	"L" streets	Traffic vh/5min						Traffic (ve/h)
		C	M	Bu	Bi	Gv	O	
1	Xietu Road (east from Luban Road)	96	5	2	73	4	2	1660,8
2	Liyuan Road	35	5	1	79	2	2	842,4
3	Mengzi Road	4	1	0	16	0	0	109,2
4	Xietu Road (west from Xizhang South Road)	63	5	2	70	4	4	1266
5	Liyuan Road (narrower)	19	10	0	56	0	1	471,6
6	Haining Road	6	0	0	33	0	2	202,8
7	Nandan East Road	139	24	5	79	1	0	2254,8
8	Xingeng Road	46	3	0	28	0	1	669,6
9	Xietu Road (similar to Nandan East Road)	139	24	5	79	1	0	2254,8
10	Lingling Road (after Dong'an)	18	3	0	41	0	2	386,4
11	Chaling Raod	15	11	0	52	0	3	424,8
12	Qingzhen Road	14	4	0	26	0	1	282
13	Yixueyuan Road	2	6	0	51	0	1	235,2
14	Xiaomuqiao Road (towards Zhaojiabang)	60	10	3	76	0	3	1155,6
15	Damuqiao Road (south from Zhaojiabang)	65	11	2	83	4	0	1334,4
16	Ya'an Road (close to Zhaojiabang)	22	5	0	25	3	0	480
17	Dapu Road (south from Xietu)	67	9	2	82	1	1	1245,6
18	Quxi Road	8	19	0	86	1	1	516
19	Ruijin South Road	166	16	2	51	6	0	2521,2
20	Chaling Road (north-south)	16	7	0	52	0	2	416,4
21	Damuqiao Road (south from Chaling)	48	10	1	50	3	2	948

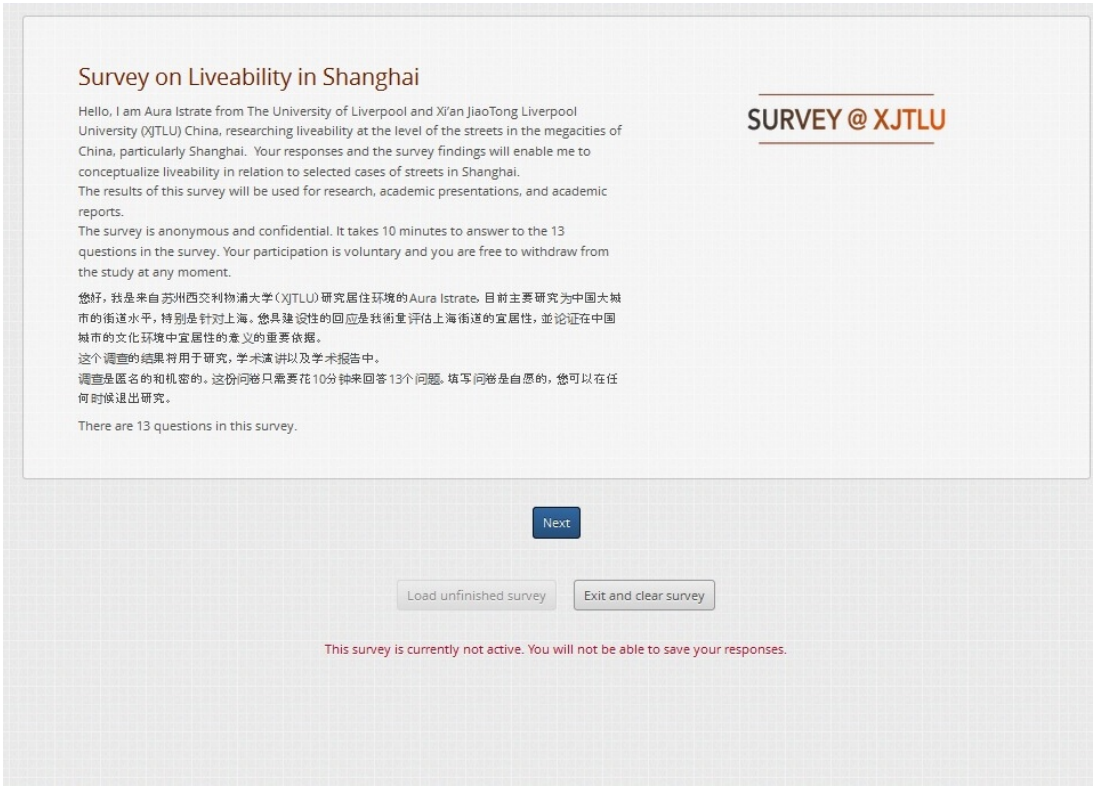
Table 10: Traffic counts on XL streets

Nr. Crt.	"XL" streets	Traffic vh/5min						Traffic (ve/h)
		C	M	Bu	Bi	Gv	O	
1	Pucheng Road	52	1	2	41	6	1	1069,2
2	Pudong Nan Road	209	6	9	24	7	0	3192
3	Nanquan Road	39	6	1	64	0	1	762
4	Juye Road	25	1	1	32	1	0	490,8
5	Miaopu Road	48	2	2	35	0	0	781,2
6	Shangcheng Road	105	3	5	35	1	1	1618,8
7	Rushan Road	54	2	1	52	0	4	902,4
8	Qixia Road	10	1	0	24	0	2	222
9	Miaopu Road (North segment)	32	2	1	32	4	0	686,4
10	Gushan Road (towards Pudong Avenue)	25	1	0	39	0	0	444
11	Juye Road (north part)	15	2	0	28	0	0	288
12	Laoshan Road	47	1	2	48	1	4	872,4

Appendix B2: Schedule to the online survey of Shanghai professionals

Information aimed to be obtained	Survey questions
Who are the respondents and their specific working characteristics (QUAN)	Please describe your current professional activity using one of the criteria below: Are you currently working in China? Please specify your nationality: For how long have you been working in the field of urban planning/urban development/architecture in China?
How is liveability practiced in Shanghai (QUAN+QUAL)	How often in your practice do you include ideas concerning liveability? How would you define 'liveability' in the context of Shanghai? In your opinion, what are the factors that affect liveability at the street level in Shanghai? (Please write down five factors in the order of their importance, the first being the most important).
Validating the results extracted from the literature review (QUAN)	Do you consider that liveability at the level of the streets, communities or neighbourhoods in Shanghai has to do with: (6 variables – options from strongly disagree to strongly agree) Are there any other variables of liveability that you consider fundamental to add, besides the 6 variables in the table above?
Influences in the respondents answers - from working/studying abroad, from certain historical periods under governmental regimes, etc. (QUAN) Filtering the current Shanghai location (QUAN)	Have you been working or studying abroad? If yes, where and for how long? May I ask your age? Could you please specify your current working location within China? Would you like to take part to further interviews or discussions on liveability? If yes, could you please provide your name and contact information?

Appendix B3: Online survey uploaded on the LimeSurvey platform



Survey on Liveability in Shanghai

Hello, I am Aura Istrate from The University of Liverpool and Xi'an JiaoTong Liverpool University (XJTLU) China, researching liveability at the level of the streets in the megacities of China, particularly Shanghai. Your responses and the survey findings will enable me to conceptualize liveability in relation to selected cases of streets in Shanghai.
The results of this survey will be used for research, academic presentations, and academic reports.
The survey is anonymous and confidential. It takes 10 minutes to answer to the 13 questions in the survey. Your participation is voluntary and you are free to withdraw from the study at any moment.

您好，我是来自苏州西交利物浦大学（XJTLU）研究居住环境的Aura Istrate，目前主要研究为中国大城市的街道水平，特别是针对上海。您具建设性的回应是我衡量评估上海街道的宜居性，並论证在中国城市的文化环境中宜居性的意义的重要依据。
这个调查的结果将用于研究，学术演讲以及学术报告中。
调查是匿名的和机密的。这份问卷只需要花10分钟来回答13个问题。填写问卷是自愿的，您可以在任何时候退出研究。

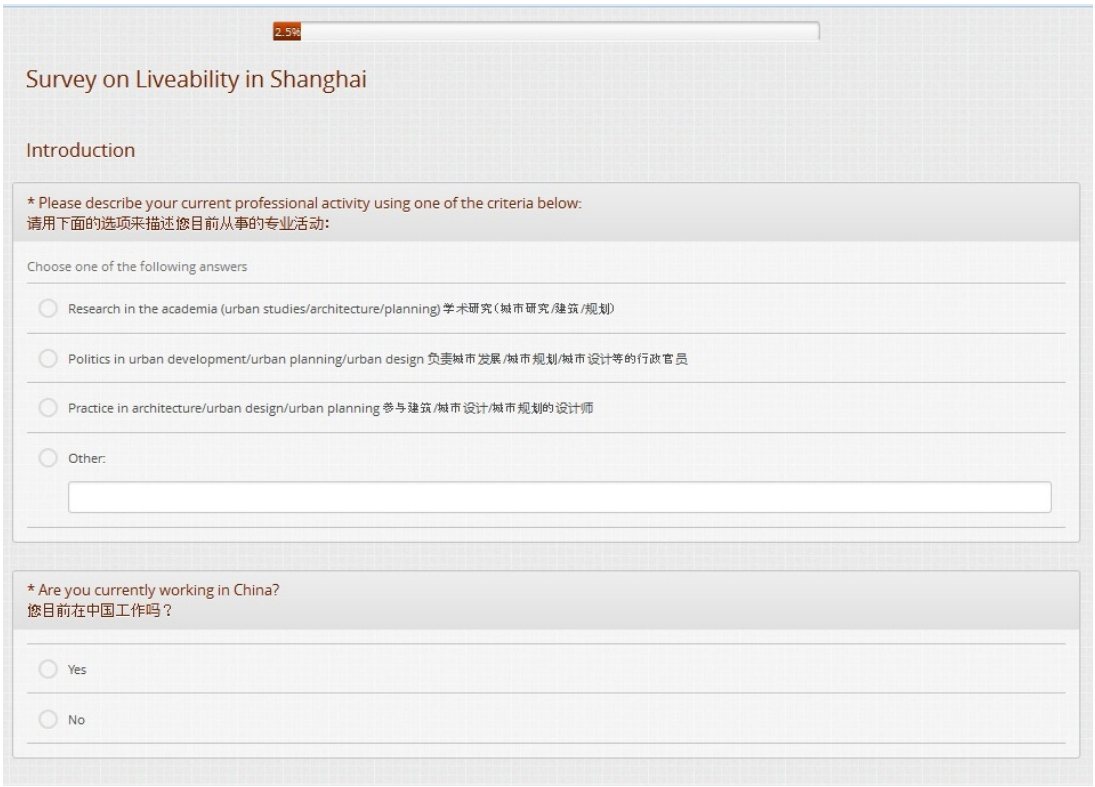
There are 13 questions in this survey.

SURVEY @ XJTLU

Next

Load unfinished survey | Exit and clear survey

This survey is currently not active. You will not be able to save your responses.



2.5%

Survey on Liveability in Shanghai

Introduction

* Please describe your current professional activity using one of the criteria below:
请用下面的选项来描述您目前从事的专业活动：

Choose one of the following answers

- Research in the academia (urban studies/architecture/planning) 学术研究（城市研究/建筑/规划）
- Politics in urban development/urban planning/urban design 负责城市发展/城市规划/城市设计等的行政官员
- Practice in architecture/urban design/urban planning 参与建筑/城市设计/城市规划的设计师
- Other:

* Are you currently working in China?
您目前在中国工作吗？

- Yes
- No

* Please specify your nationality:
请确认您的国籍：

* For how long have you been working in the field of urban planning in China?
您在中国城市规划的领域工作多久了？

Choose one of the following answers

- 0-5 years (0-5年)
- 5-10 years (5-10年)
- 10-20 years (10-20年)
- Over 20 years (20年以上)

* How often in your practice do you include ideas concerning liveability?
在您的计划中实践"宜居"的概念的频率为何？

Choose one of the following answers

- with less than 10% of the projects不到10%的项目
- with 10-25% of the projects 约有10%-25%的项目
- with 25-50% of the projects 约有25%-50%的项目
- with more than 50% of the projects超过50%的项目

* How would you define 'liveability' in the context of Shanghai?
您会如何定义以上海为前提的宜居性？

* In your opinion, what are the factors that affect liveability at the street level in Shanghai?
依您的看法，影响居住在上海街道水平的宜居性因素有哪些？

i

ii

iii

iv

v

Please write down five factors in the order of their importance, the first being the most important.
请依他们的重要性写下五个因素，最重要的写在前面。

* Do you consider that liveability at the level of the streets, communities or neighborhoods in Shanghai has to do with:
您认为上海的街道、社区或街区的宜居性在程度上的考虑因素有：

	Strongly Disagree 强烈反对	Disagree 不同意	Neither Agree nor Disagree 中立	Agree 同意	Strongly Agree 非常同意
Safety (traffic safety and living safety) 安全性（交通安全和生活安全）	○	○	○	○	○
Sense of place地方归属感	○	○	○	○	○
Social Interaction邻里互动	○	○	○	○	○
Humanized environment/ humanistic care人文关怀	○	○	○	○	○
Small Scale Economic Activities 良好的生活设施	○	○	○	○	○
Good physical facilities for living 小型商业活动	○	○	○	○	○

Are there any other variables of liveability that you consider fundamental to add, besides the 6 variables in table above? (Besides the extracted 6 variable of liveability listed in the table above, which other variables you consider fundamental to add for the case of Shanghai?)
除了上述的6个因素，是否有任何其他宜居性的基本因素你认为需要添加的？

Other variable 其他因素

Other variable 其他因素

* Have you been working or studying abroad? If yes, where and for how long?
您是有曾经在国外工作/留学或待在国际的环境中？如果是，在哪里和多久时间？

* May I ask your age?
可以询问您的年龄范围吗？

Choose one of the following answers

- ○ 18-30 years (18-30岁)
- ○ 31-40 years (31-40岁)
- ○ 41-50 years (41-50岁)
- ○ Over 50 years (50岁以上)

* Could you please specify your current working location within China?
您目前在中国境内的工作地点为？

Would you like to take part to further interviews or discussions on liveability? If yes, could you please provide your name and contact information?
您是否愿意参加针对宜居的进一步访谈或讨论？如果愿意，请提供您的姓名和联系方式

Name请填写您的姓名

Appendix B4: Cover letter sent to online survey subjects

Dear Professionals in Architecture and Urban Studies// Dear Sir or Madame

尊敬的建筑和城市研究专业人员//尊敬的先生或女士

My name is Aura Istrate, I am a PhD Candidate at The University of Liverpool – XJTLU Suzhou, in the Architecture Department.

您好，我是来自苏州西交利物浦大学（XJTLU）的Aura Istrate, 建筑学系博士候选人.

I am seeking your participation in a survey concerning liveability in cities.

我想邀请您参与一份关于宜居城市的调查问卷。

This survey is a key element of my current PhD research on "Livable streets in the megacities of China: the case of Shanghai". I am seeking your views and inputs regarding the understanding of liveability at the local level of analysis.

Your thoughtful responses will enable me to conceptualize liveability in relation to selected cases of streets in Shanghai and to understand the meaning of liveability in the context of China.

这份问卷是我目前的博士研究课题"中国大城市适居街道研究：以上海为例"的一个关键组成部分。在此我寻求您的观点，以帮助我分析专业人员对小尺度上宜居性的理解。您具建设性的回应是我衡量评估上海街道的宜居性，並论证在中国城市的文化环境中宜居性的意义的重要依据。

I would be grateful if you could take just 10 minutes of your time to complete the 12-question survey by June 30th. To fill-in the survey, please click here: [SurveyLink].

如果您能花上10分钟的时间在6月30日前完成這份有12个问题的问卷调查，我将不胜感激。填写调查，请点击这里：[SurveyLink].

I would like to emphasize that your responses will not be attributable to you specifically, only to your types of activity (research in the academia; politics; architecture and planning practice) and locations of your work. If you wish, you are invited to further participate in this research, in which case I would kindly ask you to

leave your name and contact details. I will ensure the confidentiality of your answers. The data will be stored in a password protected computer and the personal identifiers will be anonymized. Your participation is voluntary and you can withdraw from the study at any moment.

在此强调，这份问卷是匿名的，关于个人的问题只会涉及到您的从业领域（是学术研究；政策制订；还是建筑和规划实践）和从业的城市。但是如果您愿意参与我下一步关于宜居性的访谈，请您自愿留下姓名和联系方式，以便我之后联系您。我会确保您对这份问卷的答案的保密性。

一切的数据会被存储於受密码保护的电脑中，个人身份都将匿名。填写问卷是自愿的，您可以在任何时候退出研究。

Once more, I would like to thank you for taking the time to complete this survey.

再一次感谢您花时间来完成这项调查。

Best Regards,

诚挚的问候,

Aura Luciana Istrate

Appendix B5: Email body sent to organizations and authorities, targeting subjects for the online survey

Dear Authorities concerned with urban planning and city development issues,
尊敬的城市规划及城市发展有关部门

I am contacting you with a survey regarding liveability in cities.

The survey is a key element of my current PhD research on “Liveable streets in the megacities of China: the case of Shanghai”.

我想邀请您参与一份关于宜居城市的调查问卷。。这份问卷是我目前的博士研究课题“中国大城市适居街道研究：以上海为例”的一个关键组成部分。

I am interested in the views of three senior members of your organization in understanding liveability. Their responses will enable me to assess how liveability is currently understood in China. The survey has only 10 questions and it will take less than 5 minutes to complete. [SurveyLink]

为了能理解宜居性的内涵，我希望贵组织三名高层成员能参与我的问卷调查。他们的应答能让我加强目前中国对宜居性的理解。这份问卷只需花不到5分钟即可完成。[SurveyLink]

I would like to emphasize the fact that the responses will not be attributable to your members specifically, confidentiality being assured. The participation in this study is voluntary and participants can withdraw from the study at any moment. Once more, I would like to mention how grateful I am for taking time to forward the attached cover letter with the survey link to three senior members of your organization.

在此强调，该问卷的内容是保密的，并不会针对任何特定成员。参与这项研究是自愿的，参加者可以随时退出研究。另外，我想再次谢谢贵组织的三名高级成员，非常感谢他们愿意花时间来接受我的问卷调查。

Best Regards,
诚挚的问候,

Aura Luciana Istrate

PhD Candidate, University of Liverpool – XJTLU Suzhou, Architecture Department

博士候选人– 西交利物浦大学 (XJTLU)苏州，建筑系

Appendix B6: Schedule of semi-structured interviews with academics

Subject Line: Research interview on liveability in Chinese cities

主题：中国城市宜居性的研究访谈

Dear Professor,

尊敬的教授:

My name is Aura Istrate,I am a PhD Candidate at The University of Liverpool – XJTLU Suzhou, in the Architecture Department. I have found your contact details mentioned in your published paper "…", 2015.

我的名字是Istrate Aura，我是苏州西交利物浦大学–建筑系博士候选人。我从您发表的论文"…"，2015中得知您的联系方式。

I would like to ask your availability for interviewing you concerning the concept of liveability in Shanghai.

我想问您是否能抽空参加一个我的采访，采访内容是关于中国城市上海城宜居性的概念。

Your thoughtful responses will enable me to conceptualize liveability in relation to selected cases of streets in Shanghai and to understand the meaning of liveability in the context of China.

您具建设性的回应将是我衡量评估上海街道的宜居性，並论证在中国城市的文化环境中宜居性的意义的重要依据。

Your participation is voluntary and would consist of answering to the questions below:

您的参与是自愿的，并将包括回答以下问题：

1. How would you define 'liveability' in the context of China? (What is the meaning of 'liveability' in the context of China?)
   你将如何在中国的前提下定义宜居的性意义？(在中国的前提下宜居性的意义是什么？)

2. Are there differences when you think of Shanghai compared to other cities in terms of liveability?
   您认为上海跟其他城市相比，在宜居性上有无任何差异？
3. In your opinion, what are the most important factors to consider when studying liveability at the level of the street in Shanghai?
   依您的看法，在研究上海街道的宜居性時，最重要的考虑因素有哪些？

   Additionally:

   此外:

   What academic papers or books do you consider the most valuable concerning the concept of liveability in Chinese cities?
   你认为对中国城市宜居性的概念上哪些学术论文或书籍最有价值？
   Is there anyone else from your professional network that you would recommend for taking part to this emailing interview? Please provide his name and contact email if possible.
   在您的专业领域的人脉中，是否有其他推荐的人选能接受电子邮件访问？如有可以，还请提供他的姓名和电子邮件。

You are invited to send your answers by simply replying to this email. There are no wrong or incorrect answers. I would be grateful if you could please send back your response within 2 weeks time.

您只需透过回寄此邮件来回复您的答案。没有错误或不正确的答案。如果您能在2周内回复，我将不胜感激。

Informed consent: Your answers will remain anonymous and confidential and will be disclosed only with your permission. The data will be stored in a password protected computer. An interpreter will translate the answers written in Chinese.

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

If you have any questions or concerns about this research, please feel free to contact me or my main Faculty Advisor, Architect Austin Williams at XJTLU.

Completion and return of the response to the interview questions will constitute your consent to participate in this research project.

知情同意：您的答复将保持匿名和保密未经本人许可不会公开。一切的数据会被存储於受密码保护的电脑中。并会有一位翻译将其翻译成中文。

当研究的结果在发表或在研讨会中讨论时，将不会揭露任何与您有关的个人讯息。

如果您有任何关注本研究的问题或顾虑，欢迎请随时联系我或我的主要指导教授:建筑师Austin Williams 西交利物浦大学 (XJTLU)联系。

完成及回传该访问问题，即表示本人已同意参与该研究计划。

Thank you for taking the time to take part to this emailing interview.

谢谢您拨空参与这份电子邮件访问。

Best Regards,

诚挚的问候,

Aura Luciana Istrate

PhD Candidate, University of Liverpool – XJTLU Suzhou, Architecture Department

博士候选人– 西交利物浦大学 (XJTLU)苏州，建筑系

Advisors:顾问： Arch. Austin Williams, Dr. Arch. Fei Chen 博士建筑师陈飞, Dr. Paul Kadetz

Appendix B7: Semi-structured schedule for interviews with developers

Thank you for accepting my invitation for interviewing you on the topic of liveability in Chinese cities.

My name is Aura Istrate, urban planner and PhD Candidate at The University of Liverpool – XJTLU Suzhou, in the Architecture Department.

Your thoughtful responses to this interview will enable me to conceptualize the meaning of liveability in the context of China and to understand how liveability issues are approached through public policies here.

The interview can last approximately 20-30 minutes.

Informed consent: I would like to ask your permission on taping this conversation for data-accuracy purposes, however I must emphasize that I will ensure the confidentiality of your answers. When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity. Additionally, if excerpts from your answers are intended to be used as anonymous quotes, I will (still) first ask your permission.

Without further delay, I would like to start the interview if you allow me.

(Q:) May I first ask how often in your projects and studies do you include ideas concerning liveability?

(Q:) How would you define/describe the concept of liveability in the context of China?

Q: Are there differences when you think of Shanghai compared to other cities in China in terms of liveability?

Q: What are the main three principles that you adopt for achieving liveability in new developments?

Q: What do you define as being a liveable street?

Additional:

Q: What urban policies do you consider the most significant in approaching issues of liveability in Shanghai?

Q: Who do you see as capable to improve liveability policies in China? It can be a political organ, a government institution, an association, etc.

Appendix B8: Semi-structured schedule for interviews with residents

简介：

Hello, my name is Aura Istrate, I am a PhD Candidate at The University of Liverpool – XJTLU, in the Architecture Department.

您好，我是来自苏州西交利物浦大学（XJTLU）的Aura Istrate, 建筑学系博士候选人.

I am doing a study about residential streets in Shanghai and I would like to ask your availability for interviewing you concerning what makes a street suitable for living in your opinion.
我正在做一个关于上海的住宅街道的研究，我想问一下你是否可以采访你，关于一个适合居住在你看来的街道的问题。

The interview can take approximately 20 minutes. 面试时间约需20分钟。

Your participation is voluntary and you are free to withdraw from the study at any moment. 填写问卷是自愿的，您可以在任何时候退出研究。

The interviews findings will be used in writing academic papers and in conference presentations.
这个调查的结果将用于研究，学术演讲以及学术报告中。

When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.当研究结果在会议上发表或讨论时，将不会包含任何信息，将揭示你的身份。

Interview Questions:

Question 1: For how long have you lived here on this street?

你在这条街上住了多久了？

Question 2: Do you like living on this street? What are the main things that you like about living on this street? What are the main things that you dislike about living on this street?

你喜欢住在这条街上吗？在这条街上，你最喜欢的主要事情是什么？在这条街上，你最不喜欢的主要事情是什么？

Question 3: Are there any problems with your street?

你的街道有什么问题吗？

Question 4: What are the main activities that you do on this street?

在这条街上你做的主要活动是什么？

Question 5: Do you have friends or acquaintances that live on this street? How many?

你有住在这条街上的朋友或熟人吗？有多少？

Question 6: What would be the ideal street for you to live in Shanghai? (please describe)

你住在上海的理想的街道是什么？（请描述）

How are the safety/ social issues/ facilities for living/ living conditions/ traffic issues on this street?

1. In which area do you feel at home? Could you please draw it on this piece of paper? (Alternatively phrased: Do you feel like home in the following areas: The whole block or more feels like home □ This building and out into the street □ Building and out into the sidewalk □ Just the building □ Just my own apartment/house □ Other, (specify) □ Don't know, can't say □)

1.哪个区域让您觉得像家一样亲切？您可以在纸上画出来那块区域么？（或者可以定向选择：您感觉后面这些情况像家么：

整个街区乃至更大范围□

这栋建筑和建筑外的街道 □

建筑和人行道□

只是建筑□

只有我自己的公寓\房子 □

其他，（请详述） □

不知道，不想说 □

2. About how many friends and relatives do you see regularly who live on this street? Count each household as one set of friends or relatives. _____ (Write in numbers)

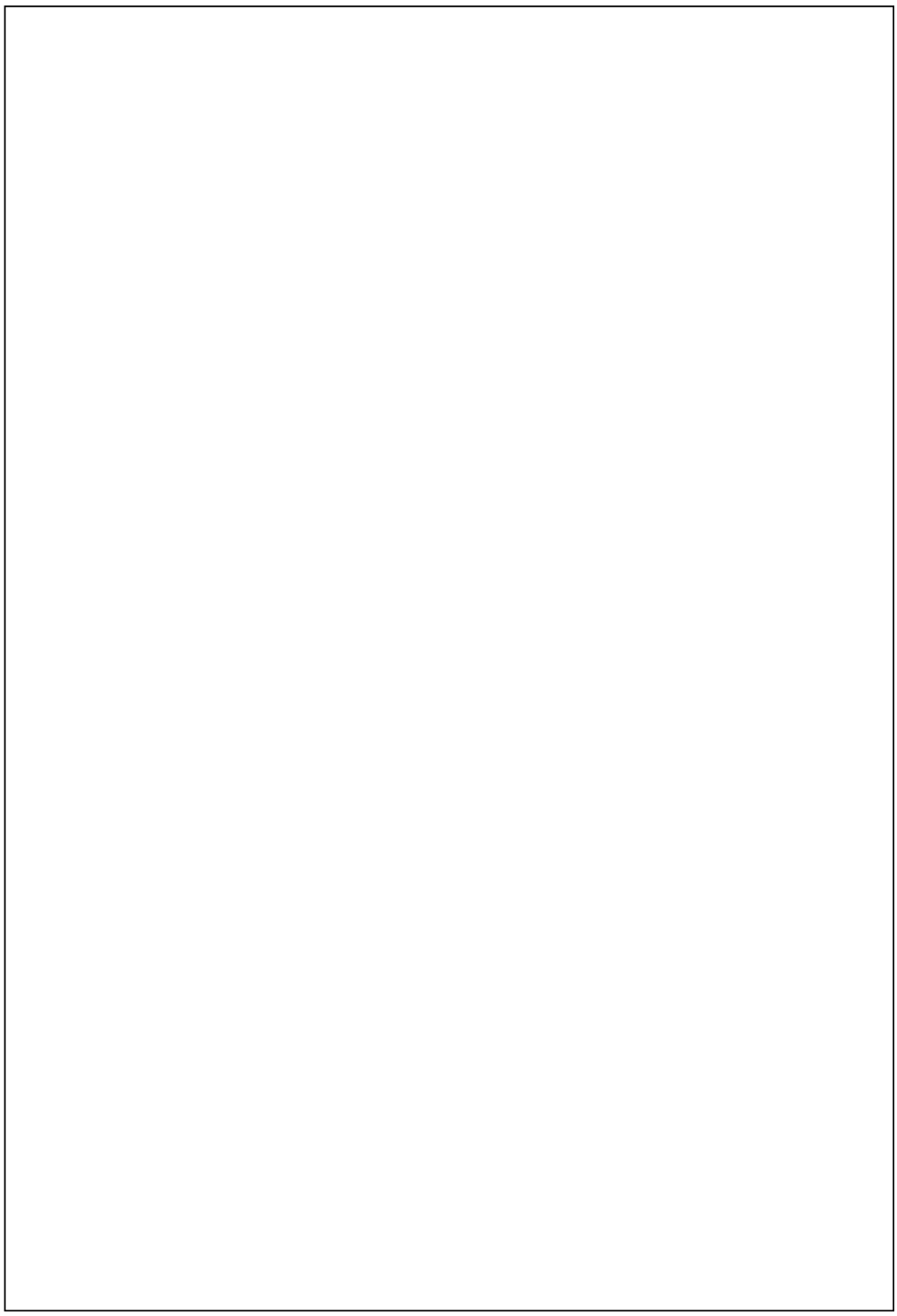
Could you please point their household on the map below?

2.您认识这条街上的几个邻居呢？数一下您认识的人的邻居的数量_____(请填写数字)

您可以在下面的图上指出他们的家么？

3. Could you please draw a map of your own street the way you see it on the paper sheet below?

3. 如果方便，请在下面画出您家所在街道的风貌。



Appendix B9: Structured schedule for interviews with residents

Introduction:

Hello, I am_____ from Xi'an Jiaotong Liverpool University (XJTLU), student in the Architecture Department.

We are doing a study about residential streets in Shanghai and I am collecting people's opinions about what makes a street suitable for living.

It will take approximately 15 minutes to answer 23 questions. As a participant, you are free to withdraw from the study at any moment. The survey is anonymous and confidential. All the data is collected in a computer with password and will be completely deleted after analysis.

If the data is published, your identity will not be revealed.

Xi'an Jiaotong-Liverpool University 西交利物浦大學

江苏省苏州市中国新加坡工业园区独墅湖科教创新区仁爱路 111 号 电话：0512 8816 1000 传真：0512 8816 1899 邮编：215123

Intro question: Do you live here on this street?

The questions I am going to ask concern the street you live on here. For the purpose of this research, think of your street as:

- ***Liyuan Road – from Luban Road to Mengzi Road***

1. For how long have you been living on this street? _____

2. What activities do you feel comfortable doing on this street?

_____

_____

Prompts:	Talking to people/chatting	❑
	Sitting outside	❑
	Exercising/Taichi	❑
	Dancing	❑
	Playing cards/games	❑
	Shopping food/goods	❑
	Eating	❑
	Cooking	❑
	Drinking tea	❑
	Drinking alcohol	❑
	Sunning clothes	❑
	Reading newspaper	❑
	Walking pets	❑
	Strolling	❑
	Cycling	❑
	Watching the children play	❑
	Pushing stroller/wheelchair	❑
	Other _____	❑

How often do you do these activities?

_____

Why do you choose to do the above mentioned activities right here on this street?

_____

3. Is there anything that bothers you or that you do not like about living on this street?

_____

_____

4. About how many friends and relatives do you see regularly who live on this street?
_____ (write in numbers)

5. In about how many households do you know people by sight? [*Count each household as one set of friends or relatives]*
On this side of the street _____ (write in numbers)
On the other side of the street _____ (write in numbers)

6. Where do you usually prefer to meet your friends?

Prompts:	On the street itself	□	
	On the lane	□	
	In a park	□	
	In a square	□	
	In a restaurant	□	
	In a coffee shop	□	
	In a library	□	
	At home	□	
	Another private place (specify_____)		□
	Another public place (specify_____)		□
	Not sure, depends	□	

On what does your preference depend?

7. If you could, what would you improve about this street?

8. How safe would you say this street is on a scale from 1 to 5?

	1	2	3	4	5	
Very unsafe for living	□	□	□	□	□	Very safe for living
Very unsafe from traffic	□	□	□	□	□	Very safe from traffic

What exactly about the street is safe or unsafe for you?

9. Would you let your children play on this street?

Prompts:	At any time	□
	With supervision only	□
	No, never	□
	Not having children/grandchildren	□

10. Are there any traffic issues on this street?

_____

_____

11. Does noise bother you on this street?

Yes ☐

No ☐

If yes, what kind of noise bothers you the most:

The noise from cars or buses ☐

The noise from bikes or motorcycles ☐

The noise from people speaking ☐

Other (Specify _____) ☐

If noise bothers, when is it bothering you the most?

_____

Prompts: When sleeping ☐

When eating ☐

When working ☐

When spending time with family or friends ☐

When walking in the neighborhood ☐

Other (Specify _____) ☐

12. How do you find the amenities and services for living on this street (including housing, educational and recreational options, basic services of water, electricity, gas, transport options, food services)?

_____

_____

Could you overall rate the convenience of the amenities on this street on a scale from 1 to 5?

	1	2	3	4	5	
Very inconvenient	☐	☐	☐	☐	☐	Very convenient

13. Do you have any business activities on this street?

Yes, I own a shop ☐

Yes, I am working for a shop ☐

No, I do not have any business activities on this street ☐

Other (specify_____) ☐

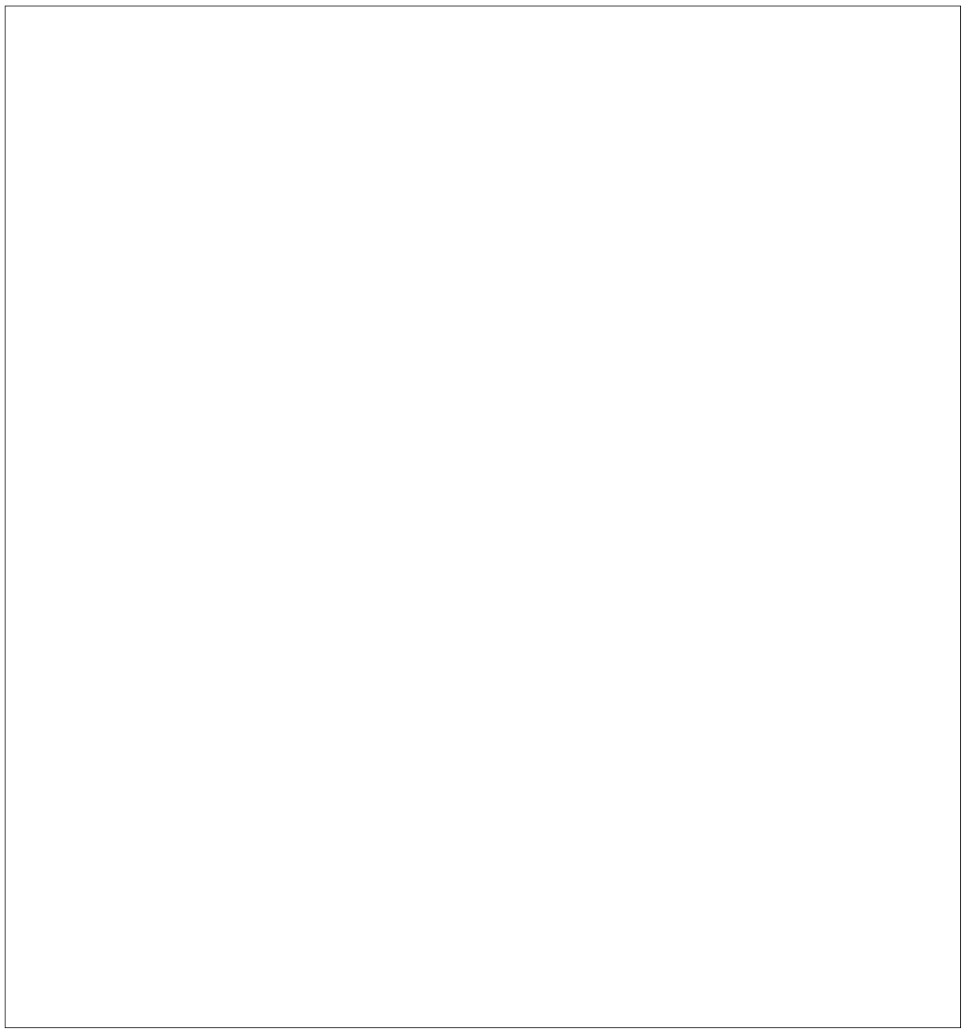
Further, I would like to ask you to complete some drawing questions.

14. In which area do you feel as comfortable like you're in your own home? Could you please draw it on this piece of paper?

(Alternatively phrased: Do you feel like home in the following areas:
The whole block or more feels like home □
This building and out into the street □
The building and out into the sidewalk □
Just the building □
Just my own apartment/house □
Other (specify_____) □
Don't know, can't say □)

15. Could you please mark the places where your friends live on the map below?

16. Could you please make a drawing or write some words about the way you picture your street on this paper sheet below?



At the end, I would like to ask you some background questions so your answers can be classified with the answers of other people in the survey.

17. May I ask your age?

_____(years)

18. May I ask what the highest grade that you completed in education is:

- No education ☐
- Primary school ☐
- Secondary school ☐
- College, business or technical school ☐
- University or above ☐

19. Where are you from originally:

- Shanghai native ☐
- Chinese from another part of Mainland China ☐
- From Hong-Kong/Taiwan/Macau ☐
- Other (specify_____) ☐

20. The house that you live in is:

- Owned by you ☐
- Rented from another landlord ☐
- Social housing provided by the government ☐
- Other (specify_____) ☐

21. Including yourself, how many people are there in your household?

_____ (number)

22. Now, we do not care to know your exact income, but could you please tell me in which of these groups your total family income falls (formal and informal)?

- Under 6,000CNY/month ☐
- 6,000-15,000CNY/month ☐
- 15,000-30,0000CNY/month ☐
- 30,000-60,000CNY/month ☐
- more than 60,000CNY/month ☐

23. Would you like to take part to further interviews about your street?

- Yes ☐
- No ☐

If yes, could you please provide your name and contact information?

Name_____

Contact Information (tel/email)_____

Address _____

ONCE THE INTERVIEW IS FINISHED, LOOK IT OVER CAREFULLY TO BE SURE THAT ALL THE QUESTIONS HAVE BEEN COMPLETED. ADD TO THE BACK OF THE QUESTIONNAIRE THE FOLLOWING INFORMATION:

Notes to take on the respondents by the student:

1. The street where the survey completion took place: _____

2. Respondent's Gender

Male ☐
Female ☐

3. Your estimation on the respondent's age: _____

4. Respondent's housing

Old residential building (before 1949) ☐ **nr of floors ____**
Socialist residential building (1950s-1980s) ☐ **nr of floors ____**
Modern residential building (after 1990s) ☐ **nr of floors ____**
Building has other function, specify_____ ☐ **nr of floors ____**

5. Time and date of the questionnaire_____
6. Student name_____

*FURTHER, PLEASE ADD THE TRANSLATION INTO ENGLISH OF THE RESPONSES TO THE OPEN-ENDED QUESTIONS (Questions number **2, 3, 6, 7, 10, 16**; Write the English answer below the answer written in Chinese)*

Appendix B10: Structured schedule for interviews with residents, in Chinese

简介：

您好，我是_____,来自苏州西交利物浦大学（XJTLU）建筑系.。

我们正在做一个关于上海的住宅街道的研究，我想问一下是否可以采访您，在你看来什么会让街道适合居住 的相关问题。

回答这项调查中的23个问题约需要15分钟。填写问卷是自愿的，您可以在任何时候停止访谈。调查是匿名的和保密的。

所有的数据都被收集在一个加密的计算机内，并会在研究分析完毕后完全删除。

如果数据被公开发表，您的身份将不会被泄露。

Xi'an Jiaotong-Liverpool University
西交利物浦大學

江苏省苏州市中国新加坡工业园区独墅湖科教创新区仁爱路 111 号 电话：0512 8816 1000
传真：0512 8816 1899 邮编：215123

问题：你住在这条街上吗？

我要问的问题是你住的街道。为本研究的目的，你的街道范围是：

•丽园路--从鲁班路到蒙自路段

1. 你在这条街上住了多久了？_____

2. 在这条街上从事什么活动会让你感觉舒适？

_____

_____

举例:	人们交谈	☐
	坐在路边	☐
	做运动/打太极	☐
	跳舞	☐
	打麻将/玩扑克/下棋	☐
	买东西	☐
	吃饭	☐
	做饭	☐
	喝茶	☐
	喝酒	☐
	晒衣服	☐
	读报纸	☐
	遛宠物	☐
	消闲散步	☐
	骑自行车	☐
	看孩子们玩耍	☐
	推车或轮椅	☐
	其它_____	☐

你大约多久一次从事这些活动？

_____

你为什么选择在这条街上做上述活动？

_____

3. 在这条街上有什么让你困扰的事吗？

_____

_____

4. 有多少亲戚朋友住在这条街上是你经常遇到的？

_____ (请填写数字)

5. 大约有多少户人家是你认识的？[*把每个家庭都当作一个朋友或亲戚*]

在街道的这一边 _____ (请填写数字)

在街道的另一边 _____ (请填写数字)

6. 你通常偏好在哪里和朋友见面？

举例:	在马路/在街道上	☐
	在弄堂/小巷里	☐
	在公园	☐
	在一个广场	☐
	在餐厅	☐
	在咖啡店	☐
	在图书馆	☐
	在家里	☐
	另一个私人的地方（请详述_____）	☐
	另一个公共场所（请详述_____）	☐
	不确定，取决于	☐

你选择地点的偏好取决于什么？

_____

7. 如果可以，你会从哪些方面改善这条街？

_____

_____

8.你觉得这条街有多安全？ 等级的尺度从 1 到 5？

	1	2	3	4	5	
居住的非常不安全	☐	☐	☐	☐	☐	居住的非常安全
交通非常不安全	☐	☐	☐	☐	☐	交通非常安全

究竟是什么让你觉得这条街上安全或不安全？

_____

9. 你会让你的孩子在这条街上玩吗？

举例:	在任何时间	☐
	只有在监督下	☐
	没有，从来没有	☐
	没有孩子/孙子孙女	☐

10. 这条街上有什么样的交通问题吗？

_____

_____

11. 这条街上噪音打扰你了吗？

Yes	☐
是的	☐
No	☐
不会	☐

如果是的话，什么样的噪音最困扰你：

汽车或公交车的噪音	☐
来自自行车或摩托车的噪音	☐
人们大声说话的噪音	☐
其它（请详述_____）	☐

如果噪音会让你感到困扰，是什么时候最让你困扰？

_____

举例:	睡觉的时候	☐
	吃饭的时候	☐
	工作的时候	☐
	与家人或朋友共度时光时	☐
	在附近散步时	☐
	其它（请详述_____）	☐

12.你如何在这条街上找到生活必要的设施与服务（包括住房，教育和娱乐活动，基本的水，电，瓦斯，交通设施，饮食服务）？

_____

_____

请您全方面衡量这条街上设施的便利性☐ 等级的尺度从1到5？

	1	2	3	4	5	
很不方便	☐	☐	☐	☐	☐	非常方便

13. 你在这条街上有商业活动吗？

有的，我拥有一家商店	☐
有的，我在一家商店工作	☐
没有，我在这条街上没有任何商业活动	☐
其它（请详述_____）	☐

此外，我想请你完成一些绘图问题。

14. 哪个区域让您觉得像家一样亲切？请你把它围在下面的地图上好吗？

（或者可以定向选择：
您感觉后面这些情况像家么:

整个小区乃至更大范围□

您所居住的建筑和建筑外的街道□

建筑和人行道□

只有建筑□

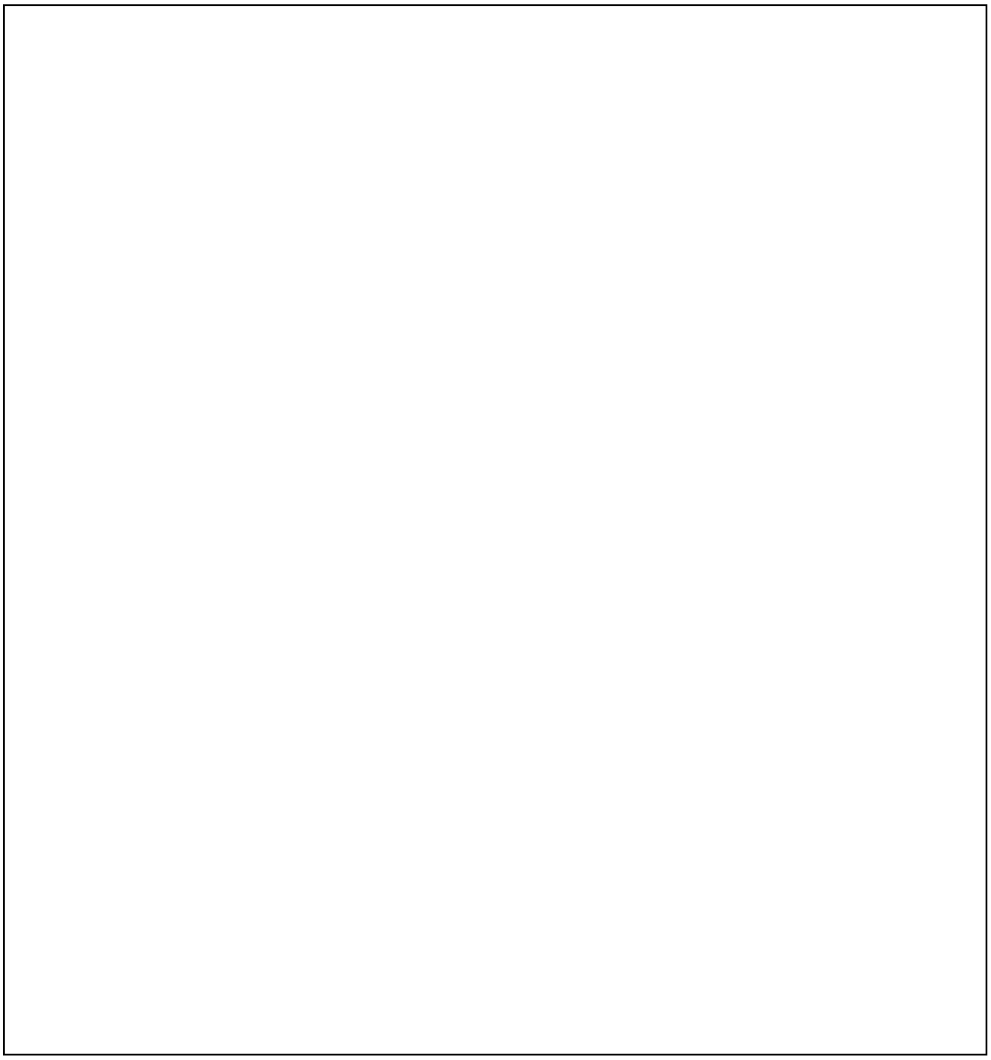
只有我自己的公寓\房子 □

其他，（请详述_____） □

不知道，不想说 □ ）

15. 你能在下面的地图上标出你朋友住的地方吗？

16. 如果方便，请在下面画出您家所在街道的风貌或写一些评述：



最后，我想问你一些个人背景问题，以便你的答案与其他人的答案可以在调查中做归类。

17. 请问你的年龄？

_____（岁）

18. 请问你的最高教育程度是什么？

没有教育	☐
小学	☐
中学	☐
学院，商业或技术学校	☐
大学本科或以上学历	☐

19. 你原来是哪里人：

上海本地人	☐
来自中国大陆的其他地方	☐
来自香港/台湾/澳门	☐
其它（请详述_____）	☐

20. 你住的房子是：

自己所拥有的	☐
跟房东租住的房子	☐
政府提供的社会住房	☐
其它（请详述_____）	☐

21. 包括你自己，你家里有多少人？

_____ (请填写数字)

22. 现在，我们不需要知道你的确切收入，但能告诉我，在以下分类中，你的家庭总收入范围吗（正式和非正式）？

在6000元/一月以下	☐
6000-15000元/一月	☐
15000-30000元/一月	☐
30000-60000元/一月	☐
超过60000元/一月	☐

23. 你愿意参加关于你的街道的进一步采访吗？

是的	☐
否	☐

如果可以，请提供您的姓名和联系方式？

姓名_____

联系方式（电话/电子邮件）_____

地址_____

Appendix B11: Audit form of physical characteristics of streets

Liveability at the local level in Shanghai

Observation form

Date _____Time_____

Weather (°C) _____

Street Name _____

Study Area

S	M	L	XL

Segment Type based on Traffic Volume

High volume	Medium Volume	Low Volume
1	2	3

HUMANIZED ENVIRONMENT: Pedestrian environment

1. Width of footpath/walkway _____m

None or <1m	1m-2m	2m-3m	3m-4m	> 4m
1	2	3	4	5
None or <1m	1m-2m	2m-3m	3m-4m	> 4m
1	2	3	4	5

2. What is the condition of the walkway?

Poor -many bumps/cracks/holes	Fair -some bumps/cracks/holes	Good -few bumps/cracks/holes	Under repair
1	2	3	4

3. Obstructions on the footpath/walkway?

Parked cars/bikes	Trash cans	Shop goods	Pillars /cables
1	2	3	4
Informal vendors	Trees	Other	None
5	6	7	8

4. How many times do you need to leave the footpath/walkway because of obstructions?

Could not walk	4-6 times	1-3 times	Never
1	2	3	4

5. Urban furniture + other amenities

Little/no amenities	Benches	Water fountain
1	2	3
Public trash cans	Bikes parking	Bus stop (how many____)
1	2	3

6. Are there crossing aids for pedestrians?

None	Signs	Overpass/ underpass	Zebra crossing	Median Island
1	2	3	4	5

7. Are there barriers that prevent pedestrians to cross the streets?

Fences on sidewalks	High medians/fences	Planting in median	None
1	2	3	4

8. Are there buffers between road and path?

None	Fence	Small vegetation	Medium vegetation	Trees
1	2	3	4	5

9. Facilities for the disabled – curb cuts on footpath

None	Some intersections	All intersections
1	2	3

10. Roadway/path lighting

No lighting	Road oriented	Pedestrian oriented	Other lighting
1	2	3	4

11. Presence of open/green spaces on the block face (front yards, squares, plazas, small parks)

On one side (count) _____

On the opposite side (count) _____

12. Are there alignment trees?

None or very few	Some	Many/dense
1	2	3

13. What is the proportion of shaded sidewalk? (from trees, buildings, etc.)

On one side_____%

On the opposite side_____%

HUMANIZED ENVIRONMENT: Road Attributes

14. Segment intersections

4 way intersection	3 way intersection	Other intersection	Cul-de-sac
1	2	3	4
1	2	3	4

15. What is the road width? _____m

>15m	12m-15m	7m-11m	<7m
1	2	3	4

16. Number of car lanes

4 lanes and more	3 lanes	2 lanes	1 lane
1	2	3	4

17. Presence of bike lanes

None	One side	Both sides
1	2	3

18. Number of senses

2 ways cars	2ways car + 1 way bikes	1 way cars + 2 ways bikes
1	2	3
2ways car + 2 ways bikes	1 way cars + 1 way bikes	Occasionally for cars + accessible for bikes
1	2	3

19. What is the condition of the roadway?

Poor - many bumps/cracks/holes	Fair - some bumps/cracks/holes	Good - few bumps/cracks/holes	Under repair
1	2	3	4

20. Are there obstructions blocking:

The Bus way	The Roadway	The Bikeway
1	2	3

What obstructions:

Parked cars/bikes	Trash cans	Shop goods	Pillars /cables
1 Informal vendors	2 Trees	3 Other	4 None
1	2	3	4

21. Is there on-street parking?

Illegal parking on street	Designated parallel or diagonal	None
1	2	3

22. What are the traffic control devices?

None	Traffic light	Stop sign	Roundabout	Street bumps
1	2	3	4	5

23. What is the posted speed limit _____km/h

24. What is the average speed of moving cars _____km/h

HUMANIZED ENVIRONMENT: Morphology of buildings and blocks

25. What is the building setback from sidewalk?

More than 10m	5m-10m	Within 5m	At edge
1	2	3	4

26. What is the average of the building heights?

>21 F	11-21F	6-11F	<6F
1	2	3	4

27. What is the building height to street width ratio?

_____

28. What is the number of entrances to the blocks/residential buildings from the street?

No entrance from this street segment	1-2 entrances	3-4 entrances	More than 4 entrances No.____
1	2	3	4
1	2	3	4

29. Are there pedestrian lanes inside the block?

One side

No	Yes
1	2

The other side

No	Yes
1	2

30. What is the proportion of old vs. new buildings?

_____

31. What is the proportion of overall facades with windows towards the street?

_____%

Proportion of windows opened towards the street

_____%

Proportion of ground floors with glass

_____%

32. The degree of enclosure

Little or no enclosure	Some enclosure	Highly enclosed
1	2	3

33. Complexity in building designs

Little or no articulation	Some articulation	Highly articulated
1	2	3

34. Transparency of the street fronts

Low transparency	Medium transparency	Highly transparent
1	2	3

35. Coherence of the building architecture styles

Lack of coherence	Medium coherency	Highly coherent
1	2	3

36. Are there landmarks visible from the street?

On the street segment

Local landmarks	District landmarks	City landmarks
1	2	3

Beyond the street segment

Local landmarks	District landmarks	City landmarks
1	2	3

List down the landmarks:

_____

_____

_____

37. The scale qualities of the streetspace

Automotive scale	Modernist-movement	Monumental scale	Human scale
1	2	3	4

FACILITIES FOR LIVING: Accessible uses & services

38. Are residential and non-residential land uses mixed?

No mix	Little mixed	Some mix	Highly mixed
1	2	3	4

39. Uses in the segment

Vacant plots	Housing	Public/government	Office
1	2	3	4
Workshops	Entertainment	Shops	Restaurant/ café
1	2	3	4
Hospital	Education	Green space	Other _____
1	2	3	4

40. Services in the segment

Post office	Bank	Convenient store	Local shops with food & others
1	2	3	4
Healthcare&beauty	Community center	Park/playground	Market
1	2	3	4

41. Proportion of ground floor commercial uses

Less than 25%	25-50%	More than 50%
1	2	3

SOCIO-ECONOMIC activities and SAFETY

42. How many people are present in this segment?

None	1 to 10	10 to 20	20+
1	2	3	4

43. Are there children playing in this segment?

No	Yes
1	2

44. Are there people stopping to talk or greet one-another?

No	Yes
1	2

45. Is there outdoor dining in this segment?

Established

No	Yes
1	2

Informal

No	Yes
1	2

Nr of outdoor tables_____

Nr of outdoor chairs_____

46. Activities on the street

A few	Some	Many
1	2	3

47. What activities happen on the street:

_____

_____

_____

48. How many locally owned shops there are?

A few (less than 5)	Some (5-10)	Many (more than 10)
1	2	3

49. Are there informal vendors present on this street segment?

No	Yes
1	2

How many? _____

Where are the vendors placed?

Roadway	Bikeway	Walkway
1	2	3

50. Overall cleanliness and building maintenance

Poor (much litter/broken facilities)	Fair (some litter/broken facilities)	Good (no litter/broken facilities)
1	2	3

51. Are there aggressive drivers on this segment (speeding, honking)?

No	Yes
1	2

The aggressive drivers are:

Cars	Buses	Bikes
1	2	3

52. Are there vehicles that are not respecting traffic rules?

No	Yes
1	2

The vehicles not respecting traffic rules are:

Cars	Buses	Bikes
1	2	3

53. What is the noise level in this segment?

V. loud	Loud	Normal	Quiet	V. quiet
1	2	3	4	5

The noise is coming from:

Cars	Buses	Bikes	Construction works	People
1	2	3	4	5

54. Are there police officers/guards present on this street segment?

No	Yes
1	2

How many? _____

Additional:

55. How is the weather?

Rainy	Cloudy	Windy	Sunny
1	2	3	4

56. How does the temperature feel?

Cold	Hot	Warm	Normal
1	2	3	4

Appendices C – to the Findings from the Study with Professionals

Appendix C1: Additional statistics to the online survey of professionals

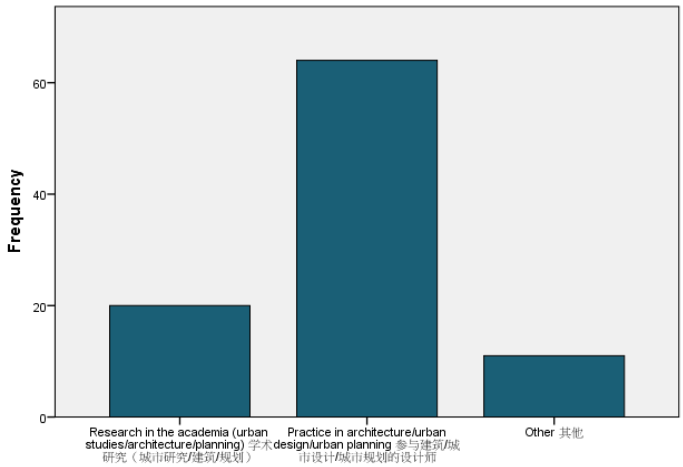


Figure 1: Professional activity of the respondents to the self-administered online Survey on Liveability

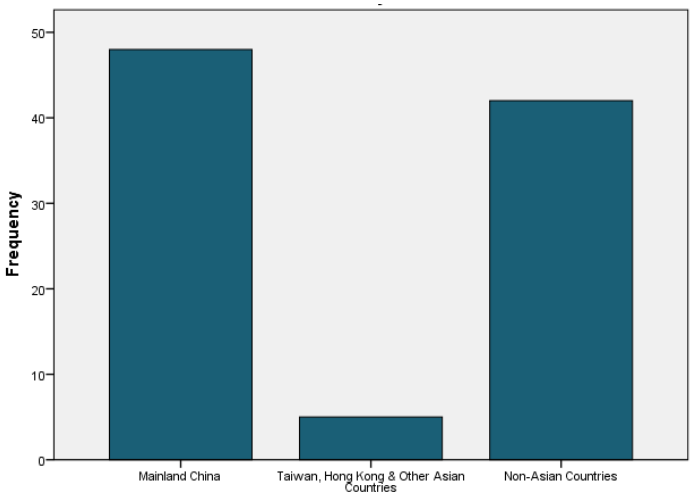


Figure 2: Nationality of the Respondents to the Self-Administered Online Survey on Liveability

Table 11: The length of time of working in the field of urban planning of professionals

For how long have you been working in the field of urban planning / urban development / architecture in China? 您在中国城市规划/城市发展/建筑的领域工作多久了？					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-5 years (0-5年)	39	41.1	41.1	41.1
	5-10 years (5-10年)	25	26.3	26.3	67.4
	10-20 years (10-20年)	25	26.3	26.3	93.7
	Over 20 years (20年以上)	6	6.3	6.3	100.0
	Total	95	100.0	100.0	

Table 12: Percentage of projects including liveability ideas

How often in your practice do you include ideas concerning liveability?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	with less than 10% of the projects	20	21.1	21.1	21.1
	with 10-25% of the projects	16	16.8	16.8	37.9
	with 25-50% of the projects	18	18.9	18.9	56.8
	with more than 50% of the	41	43.2	43.2	100.0
	Total	95	100.0	100.0	

Table 13: The working location of professionals in the online survey

Current working location					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Shanghai	78	82.1	82.1	82.1
	Other city in China	9	9.5	9.5	91.6
	Not in China currently/Recently left	8	8.4	8.4	100.0
	Total	95	100.0	100.0	

Appendix C2: Factors affecting liveable streets in Shanghai, resulting from the online survey


accessibility active air
areas building car city clean community congestion
convenient education environment facilities
green lack new parking people
pollution public quality safety
sanitation scale sidewalks
spaces street traffic
transportation


access amenities business cares cars clean climate cultural
entertaining environment facilities form furniture
good green integrated landscape metro noise
pedestrian people pollution
residence safety sanitation space time
traffic transportation
urban

Appendix C3: Characteristics of interviewed professionals

Academics	Nationality	Current Location	Type of interview
Respondent A1	USA	Chicago, USA	Emailing interview
Respondent A2	Chinese	Beijing, China	Emailing interview
Respondent A3	Japanese	Paris, France	Skype interview
Respondent A4	Chinese	Shanghai, China	Face-to-face interview
Respondent A5	Chinese	Shanghai, China	Face-to-face interview
Respondent A6	Chinese	Shanghai, China	Face-to-face interview

Developers	Nationality	Current working location	Type of interview
Respondent D1	Chinese	Shanghai, China	Face-to-face interview
Respondent D2	USA	Shanghai, China	Face-to-face interview
Respondent D3	Chinese	Shanghai, China	Face-to-face interview
Respondent D4	Chinese	Shanghai, China	Face-to-face interview
Respondent D5	Chinese	Shanghai, China	Face-to-face interview
Respondent D6	Chinese	Shanghai, China	Face-to-face interview

Appendices D – to the Findings from Interviews with Residents

Appendix D1: Description of informants to semi-structured interviews

Respondents to semi-structured interviews on Xicangqiao Street (S set)

The interviewees encountered on Xicangqiao Street in the first round of interviews were: a man in his workshop (S_xicangqiao_R1), a woman who, instead of telling her opinion about the street, took us to the Neigborhood Government Office (伟源辉, *wěiyuánhuì)* which happened to be closed that day (S_xicangqiao_P1); a man on the intersecting Caobang Street, who considered that native Shanghai people had a cleaner lifestyle that the migrant workers (S_xicangqiao_n.R1); a young migrant woman happy to live on the segment because of the cheap rent (S_xicangqiao_P1); a young man in a house rented by his employer (S_xicangqiao_R3); the owners of a small shop complaining that the business environment was low compared to how it was before (S_xicangqiao_P2, S_xicangqiao_C1); a woman in front of her porch waiting for the government to remove the old houses but still hoping to live close to the city centre after compensation (S_xicangqiao_R4).

During the second round of interviews, the respondents were: a man sitting on a chair in front of the newer residential building (S_xicangqiao_R5); a lady coming out of a gambling room (S_xicangqiao_R6); a younger man chatting with neighbours while sitting on a chair on the street (S_xicangqiao_R7); a man coming out of another gambling room (S_xicangqiao_R8).

Respondents to semi-structured interviews on Wenmiao Road (S set)

The first round of interviewees on Wenmiao Road included: a man sitting under an improvised porch (S_wenmiao_R1); another man chatting with a group of neighbours (S_Wenmiao_P1), of whom a woman added few comments (S_Wenmiao_C1); a young woman washing clothes near the entrance of her house(S_Wenmiao_P2); a man eating a bowl of rice on his rickshaw who added some comments (S_Wenmiao_C2); a woman serving the rice who expressed a positive attitude about living on this street (S_Wenmiao_R2).

At the second visit in this area, the interviewees were: a lady walking her dog (S_Wenmiao_R3); a man and a lady chatting next to a house entrance

(S_Wenmiao_P3, S_Wenmiao _R4); another man owning a small restaurant (S_Wenmiao_P4); one more man washing vegetables in front of his house (S_Wenmiao_P5); a man standing out of his mother's house (S_Wenmiao_P6); a younger man and a younger women about to ride public bikes (S_Wenmiao_R5, S_Wenmiao_R6).

Respondents to semi-structured interviews on Penglai Road (S set)

In the first round of interviews, the interviewees on Penglai Road were: a cook handling the noodles soup in front of a small restaurant (S_Penglai_n.R1); a woman sitting inside a clothes shop (S_Penglai_n.R2); the owner of a Chinese traditional massage store (S_Penglai_n.R3); a woman working in the real-estate store on the street who mentioned her wish for more open spaces around the city for her dancing activities (S_Penglai_n.R4); a passer-by in the vegetable market, a migrant worker who did not have "*any demand from this street*" (S_Penglai_P1); a native Shanghai lady standing on the street, who explained the history of the street (S_Penglai_R1); a school girl and a talkative shop assistant at a tea shop (S_Penglai_P2); a senior resident inside his compound (S_Penglai_R2).

In the second round of interviews on Penglai Road, the respondents were: a man sitting next to another neighbour on the pavement (S_Penglai_R3); a man standing at the gate of his compound (S_Penglai_R4); another man waiting for the real-estate manager to sell his mother's house (S_penglai_n.R5); three other man who stopped to read the newspaper notice board (S_penglai_R6, S_penglai_R7, S_penglai_n.R6).

Respondents to semi-structured interviews on Jiashan Road (M set)

The interviewees on Jiashan Road were: a man playing with his grand-daughter on the lane (M_jiashan_R1); another man in the compound with the main entrance from Yongkang Road (M_jiashan_n.R1); the owner of an old furniture store (M_jiashan_n.R2); a lady that was curious about the interview (M_jiashan_R2); a man repairing shoes on the street (M_jiashan_R3). Another young lady only expressed her opinion that "*living here is not bad*" (M_jiashan_C1).

Respondents to semi-structured interviews on Xiangyang Road (M set)

The interviewees on Xiangyang Road were: a man sitting on the lane while his grandchild was playing next to him (M_xiangyang_R1); a woman carrying small furniture pieces to her recently renovated house (M_xiangyang_R2); a woman stopped to read real estate offers in front of an office on the street

(M_xiangyang_R3). One more passer-by commented that "*I've lived here for so long that I don't like it*" (M_xiangyang_C1).

Respondents to semi-structured interviews on Xietu Road (M set)

A first interviewee on Shaanxi South Road was a man in front of his fruit shop (M_shaanxi_n.R1). Within one compound, many people were chatting and drinking tea, of whom one man responded to the interview questions (M_shaanxi_R1) and another woman added several comments (M_shaanxi_C1). Another lady at the vegetables store commented that she had nothing to say about the street (M_shaanxi_C2).

The next interviewee was a man of old age chatting with two other neighbours within the Bourgogne Compound. He used to work for the neighbourhood government and cared much for "*preserving the cultural soul*" of the area (M_shaanxi_R2).

A next person interviewed was a young man, waiting for his taxi (M_shaanxi_R3).

Respondents to semi-structured interviews on Mengzi West Road (L set)

The interviews on Mengzi Road started with a man drinking tea at the gate of his compound (L_mengzi_R1). Within the middle-class compounds, discussions have been carried with another man and with a woman chatting in a small group of neighbours (L_mengzi_R3, L_mengzi_C1) and with one more senior resident (L_mengzi_R5). On the side of the high-class compound, interviewed were: a young man on his bike (L_mengzi_R2), a mid-age lady who added some comments (L_mengzi_C2) and another young lady who responded to the interview in English (L_mengzi_R4).

Respondents to semi-structured interviews on Liyuan Road (L set)

On Liyuan Road, the first interviewee was encountered in a group of neighbours chatting on the street (L_liyuan_R1). The next interviewee was a man working for a vegetable shop (L_liyuan_n.R1). Further interviewed were a senior lady walking down the street (L_liyuan_R2) and a young woman standing in front of her store next to her husband and new-born baby (L_liyuan_R3). A last respondent on this segment was a man chatting with three other neighbours near the gateman (L_liyuan_R4).

Respondents to semi-structured interviews on Xietu Road (L set)

The interviewees on Xietu Road were: a woman of senior age, going for shopping (L_xietu_R1), a man accompanied by his son (L_xietu_R2), a lady in the bus stop living across the intersection (L_xietu_n.R1), another young lady standing on the side of the street (L_xietu_R3), a man waiting for a taxi (L_xietu_P2).

Respondents to semi-structured interviews on Qixia Road (XL1 set)

On Qixia Road, the first interviewees were encountered while walking on the street (XL1_qixia_R1), or while sitting at the entrance gates of their compounds (XL1_qixia_R2, XL1_qixia_R3). Another interviewee was encountered sunning clothes in front of a foot massage store (XL1_qixia_R4). The last two interviewees were encountered within their group of friends on the side of the street (XL1_qixia_R5, XL1_qixia_R6).

Respondents to semi-structured interviews on Rushan Road (XL1 set)

A first interviewee on Rushan Road was a man cutting a piece of wood near the entrance gate of his compound (XL1_rushan_P1). A next interviewee was an employee of a the real estate firm standing on the street (XL1_rushan_n.R1). The next three interviewees were either sitting within their compound or passing by the compound entrance (XL1_rushan_R1, XL1_rushan_R2, XL1_rushan_R3). Further asked for taking part to the interview was a couple (XL1_rushan_R4, XL1_rushan_C1), who has just moved in from Beijing. The next two interviewees were found within their group of friends, chatting at the vegetable shop (XL1_rushan_R5) or watching as the internet cables were getting fixed on the street (XL1_rushan_R6).

Respondents to semi-structured interviews on Shangcheng Road (XL1 set)

On Shangcheng Road, the first interviewee was a woman with her grandson sitting next to the compound entrance (XL1_shangcheng_R1). The next respondent, a well-dressed man serving for the government mentioned his total discontentment with the living conditions (XL1_shangcheng_P1). Further on the street, another man commented that he didn’t like the residents in his compound (XL1_shangcheng_C1). The next respondents were: a woman waiting in the bus stop (XL1_shangcheng_R2), a man walking along his grand-daughter (XL1_shangcheng_R3), a young woman waiting for a taxi (XL1_shangcheng_R4).

Respondents to semi-structured interviews on Pucheng Road (XL2 set)

On Pucheng Road the interviewees were encountered at the door of a hairstyling store (XL2_pucheng_R1) and in the bus stops (XL2_pucheng_R2; XL2_pucheng_R3; (XL2_pucheng_R4). Another woman coming out of Shimao Residence was working within the compound, but not living there (XL2_pucheng_n.R1).

Respondents to semi-structured interviews on Nanquan Road (XL2 set)

On Nanquan Road, the first interviewee was waiting on the bus stop near-by his wife and new-born baby (XL2_ nanquan_R1). A next interviewee was a loquacious man passing-by the bus stop (XL2_ nanquan_R2). The next three interviewees were encountered in another bus stop: a woman in a group going to a temple (XL2_ nanquan_P1), a woman accompanied by her child (XL2_ nanquan_R3), a young man (XL2_ nanquan_R4).

Respondents to semi-structured interviews on Pudong South Road (XL2 set)

On Pudong South Road, on the bus stops, a woman and two men in their 60s accepted to take part to the interview (XL2_pudong south_R1; XL2_pudong south_R2; XL2_pudong south_R3). A younger interviewee was standing in front of a closed store, waiting for someone (XL2_pudong south_R4).

Appendix D2: Additional statistics to structured interviews with residents

Table 14: How long the respondents lived on the selected segments

Length of living (years) * Set Crosstabulation							
		Set					Total
		S	M	L	XL1	XL2	
Length of living	less than 1 year	9,4%	0,0%	5,9%	7,1%	3,2%	5,2%
	1 - 5 years	0,0%	3,0%	17,6%	26,2%	22,6%	14,5%
	5 - 10 years	6,3%	9,1%	8,8%	7,1%	3,2%	7,0%
	10 - 20 years	25,0%	27,3%	20,6%	9,5%	29,0%	21,5%
	20 - 50 years	40,6%	48,5%	26,5%	40,5%	35,5%	38,4%
	more than 50 years	18,8%	9,1%	20,6%	9,5%	6,5%	12,8%
	missing	0,0%	3,0%	0,0%	0,0%	0,0%	0,6%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table 15: Chi-Square for the length of time of living on the selected segments

Chi-Square Tests (Length of Living crosstabulation with Sets)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	32.564a	24	0,114
Likelihood Ratio	39,066	24	0,027
Linear-by-Linear Association	0,639	1	0,424
N of Valid Cases	172		
a. 23 cells (65.7%) have expected count less than 5. The minimum expected count is .18.			

Table 16: Allowing children to play on the streets

Children play on the street * Set – Cross-tabulation							
		Set					Total
		S	M	L	XL1	XL2	
Children play on the street	at any time	6,3%	9.1%	2,9%	9,5%	12,9%	8,2%
	with supervision only	40,6%	39.4%	38,2%	33,3%	29,0%	35,1%
	no, never	31,3%	24.2%	29,4%	38,1%	41,9%	35,7%
	I do not have children or grandchildren	18,8%	24.2%	29,4%	19,0%	12,9%	19,3%
	missing	3,1%	3,0%	0,0%	0,0%	3,2%	1,8%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table 17:Chi-Square - Allowing Children to Play on the Streets according to the Sets of Streets

Chi-Square Tests (Children Playing on the Street cross-tabulation with Sets)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	9.930[a]	16	0,870
Likelihood Ratio	11,352	16	0,787
Linear-by-Linear Association	0,225	1	0,635
N of Valid Cases	172		
a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .54.			

Table 18: The places where the respondents felt at home

$Home territory Frequencies				
		Responses		Percent of Cases
		N	Percent	
Feels at home[a]	1) the whole block or more feels like home;	20	22,2%	26,3%
	2) the building and out into the street;	18	20,0%	23,7%
	3) The building and out into the sidewalk	7	7,8%	9,2%
	4) just the building	2	2,2%	2,6%
	5) just my own house/apartment;	28	31,1%	36,8%
	6) Other:	10	11,1%	13,1%
	7) don't know, can't say	5	5,6%	6,6%
Total		90	100,0%	118.4%
a. Dichotomy group tabulated at value 1.				

Table 19: The number of people in the households

People in the household					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	14	8,1	8,1	8,1
	2	28	16,3	16,3	24,4
	3	34	19,8	19,8	44,2
	4	15	8,7	8,7	52,9
	5	21	12,2	12,2	65,2
	6 or more than 6	14	8,1	8,1	73,3
	missing	46	26,7	26,7	100,0
	Total	172	100,0	100,0	

Table 20: The respondents' household income according to the sets of streets

Income * Set - Crosstabulation							
		Set					Total
		S	M	L	XL1	XL2	
Income	under 6000rmb/month	53,1%	54,5%	23,5%	19,0%	12,9%	31,6%
	6000-15000rmb/month	25,0%	24,2%	35,3%	31,0%	19,4%	28,1%
	15000-30000rmb/month	9,4%	9,1%	20,6%	16,7%	32,3%	17,0%
	30000-60000rmb/month	0,0%	3,0%	0,0%	2,4%	12,9%	3,5%
	over 60000rmb/month	0,0%	0,0%	5,9%	0,0%	0,0%	1,2%
	Other (retired)	0,0%	0,0%	0,0%	7,1%	0,0%	1,8%
	missing	12,5%	9,1%	14,7%	23,8%	22,6%	17,0%
Total		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Table 21: Chi-Square - Incomes mentioned according to the Sets of Streets

Chi-Square Tests (Income crosstabulation with Sets)			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.918a	24	0,000
Likelihood Ratio	52,167	24	0,001
Linear-by-Linear Association	3,075	1	0,079
N of Valid Cases	172		
a. 15 cells (42.9%) have expected count less than 5. The minimum expected count is .36.			

Appendix D3: Findings from interviews particularizing each street

S set - Xicangqiao Street

Indicator: Length of time living on the street

The respondents lived on Xicangqiao Street between 3 months and 70 years, mostly depending on whether they were migrant workers with a shorter length of stay, or native respondents with a longer length of stay.

Indicator: Bothering issues

Some respondents simply accepted the situation of living on this segment, seeing it as temporary, or got accustomed to it: "*There is nothing to like or dislike. I am accustomed to this street*" (S_xicangqiao_R5). A migrant respondent had to accept the situation due to circumstances: "*This is a place for me to live. It is enough for me to have a place to live. That's all"* (S_xicangqiao_R3). Furthermore, the fact that the residents were waiting for compensation often emerged in conversations: "*We are good people. We only have 5 hukou*[78]*-s in this house."* (S_Xicangqiao_R4).

Furthermore, a common problem mentioned to both the semi-structured and structured interviews was related to the too narrow street. With this, associated were the complains about the too many vehicles that "*occupy the street space*" (Xq1), resulting in a too "*crowded*" (Xq9) space. Additionally, issues of accessibility have been indicated, inconvenient for small businesses: "*Transport is bad (…) It is difficult to supply goods for my store*" (S_xicangqiao_C1).

Other mentioned problems concerned the low quality of the old houses lacking private toilets and kitchens, the rubbish on the street and the uncleanliness, but also the too few public toilets, seen as one cause for which the sanitation on the street was poor (Xq6, Xq10).

Respondents also mentioned their discontentment for having fewer shops and restaurants on the street than before, as "*some shops moved out by the order of the street government*" (Xq6). The issue of having too many people on the street has also been mentioned, seen by some respondents as a noise source.

[78] *Hukou* (湖口, húkǒu) is the residency registration in China provided at birth, which can be either agricultural (rural), or non-agricultural (urban) (Kamal-Chaoui, Leman & Rufei, 2009). Compensation when the houses are demolished from the initiative of the Government is given according to the number of *hukou*-s registered for each house.

Indicator: Improvements needed on the street

Some respondents mentioned that they would like the street to be wider (Xq1, Xq5, Xq11), cleaner, and with improved living conditions (Xq4) or "*rebuilt with new buildings*" (S_xicangqiao_R6). Several other respondents mentioned the need for a higher number of public toilets (Xq6, Xq7, Xq10). Another respondent mentioned with disappointment how people became "*unkind*", suggesting changes concerning "*the people's minds*" (Xq8). Nevertheless, someone considered that ***"this street belongs to the government, it is the responsibility of the government"*** (S_xicangqiao_R5), and therefore not his concern.

Indicator: Safety Perception

The street was considered very safe by most of the respondents to the semi-structured interviews, based on different reasons: because there were "*a lot of people chatting and playing on this street*" (S_xicangqiao_R7); because "*there are many surveillance cameras*" (S_xicangqiao_R6), and because "*safety in Shanghai is the best*" (S_xicangqiao_R6).

However, the safety ratings from the structured interviews revealed contrasting opinions: ratings indicating 'unsafe' or 'very unsafe' living and traffic conditions were received from a third of the total number of respondents; however, slightly less than half of the respondents rated the living and the traffic conditions as 'safe' or 'very safe'; the rest of the respondents had a neutral opinion.

Indicator: Traffic issues

While some respondents considered that there were no traffic issues on this segment (Xq6, Xq7, Xq10), other respondents manifested their discontentment with the fact that the "*vehicles are mixed and congested together*" (Xq1), resulting in a "*crowded*" (Xq4) space on a too narrow street. The intersection with Henan South Road was also considered with traffic jam potential (Xq5).

Indicator: Assessment of facilities and services

Concerning the physical facilities for living, the main problem mentioned was the lack of private toilets, of kitchens with gas system, but also the issue of the public bathrooms that were not close enough to homes (S_xicangqiao_R3). Nevertheless, another respondent appreciated the availability of technology: "*internet is working, so that is good*" (S_xicangqiao_R2)

The low housing rents, but also the discomfort of living in old buildings with poor insulation have also been mentioned: "*I can hear my neighbours speaking (…)*

The walls are very thin" (S_xicangqiao_R2). Someone else gave an overall description of the situation: "***The life here is bad, but we are already used to the bad life. We are people in poverty, the only thing to do is to get used to this life***" (S_xicangqiao_R4).

Indicator: Recurrence of activities and associated reasons

The daily pursued activities on the segment mentioned by the majority of the respondents were chatting and sitting outside. Other activities such as strolling, walking pets, eating, shopping, playing board games have also been often mentioned. Dancing, exercising, sunning clothes and watching the children play have been mentioned less. One respondent described his activity on the street: "*During breakfast I repair shoes, but afternoon I go home*" (Xq7), adding that he recently moved to this street as "*the housing rent is cheap*" (Xq7).

Indicators: Home territory (feeling at home); Friends and acquaintances

Some of the respondents to the semi-structured interviews indicated larger home territories and larger areas where they had acquaintances (Figure). To the structured interviews, based on the respondents' drawings, the home territories of the respondents were mainly the residential buildings and the immediate surroundings, answers which have also been reflected in the responses to prompts. Overall, when correlating the home territory with the indicated location of acquaintances, it resulted that social relations were easily forming across the street.

Concerning the specific number of friends on the street, there have been received varying responses: some respondents mentioned having no friends, but many acquaintances, other respondents mentioned lots of friends and acquaintances, up to 100-200 people. For instance, one respondent considered as friends all the people she played games with (S_xicangqiao_R6). Someone else gave an overview of the situation: "*We all are neighbours and acquaintances here, we know each other*" (S_xicangqiao_R8). However, another respondent mentioned that he used to have a lot of friends in the past but they have moved out (S_xicangqiao_R5).

Indicator: Meetup places

The preferred places for meeting friends and acquaintances were on the street itself and on the lane. Other places such as meeting friends at home, in a restaurant, and at the market have also been mentioned. Besides convenience, another mentioned reason for choosing the meeting place was the "*economic*" (Xq4) reason.

Indicator: Picturing the street

Xicangqiao segment was pictured with familiar neighbours (Xq1), with polite people, that were helping each other (S_xicangqiao_R6). However, there have been mentioned the poor interiors of the old houses (Xq10), which although had "*Shikumen structure*" (S_xicangqiao_R5), were placed on an unclean and disordered street (Xq6, Xq8).

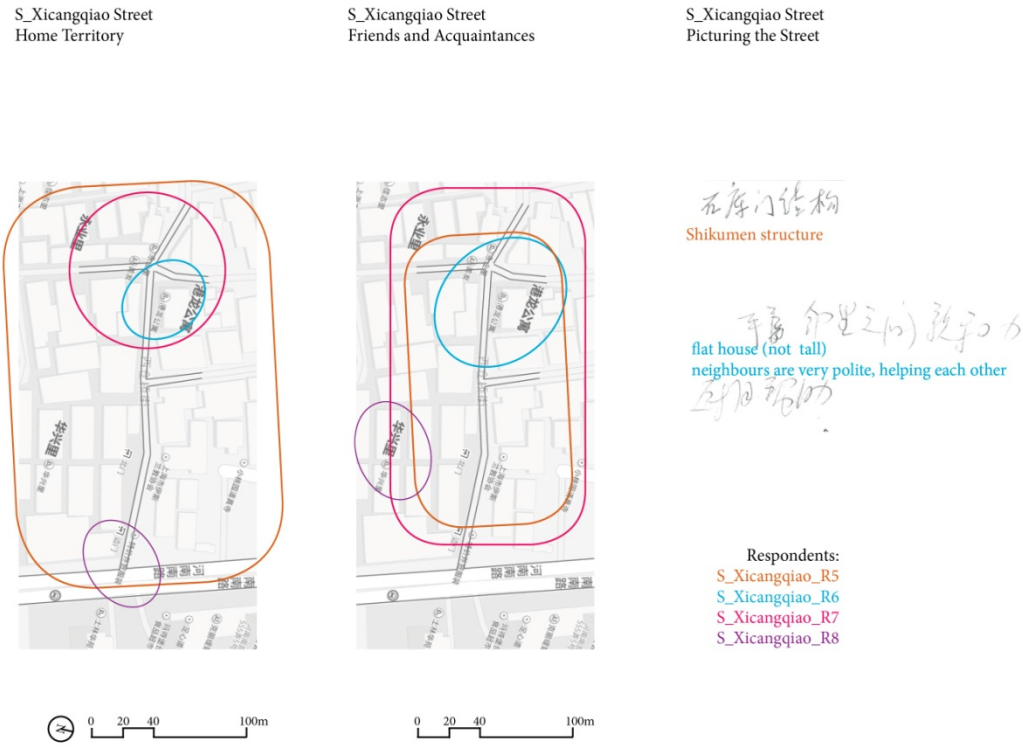


Figure 3: Drawing questions to semi-structured interviews on Xicangqiao Street (S set)

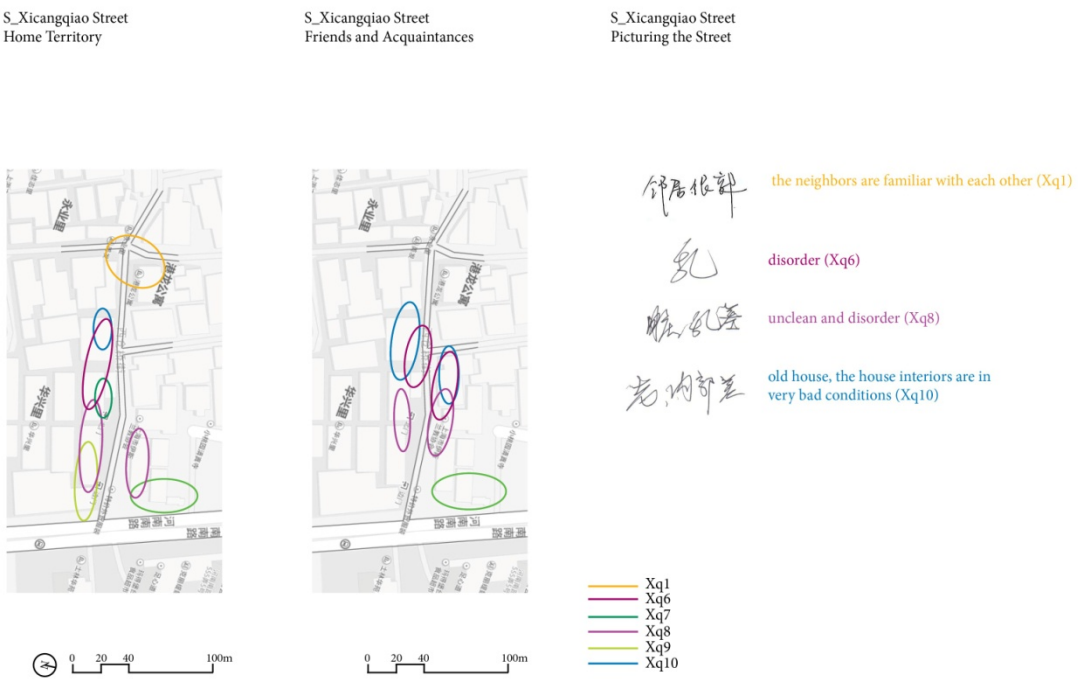


Figure 4: Drawing questions to structured interviews on Xicangqiao Street (S set)

S set - Wenmiao Road

Indicator: Length of time living on the street

The respondents lived on Wenmiao Road between half a year and 65 years.

Indicator: Bothering issues

The too narrow street was considered a main problem, as mentioned by six respondents. This issue was further associated with having too many bikes on the street and to a chaotic traffic, where "*both people and vehicles share the same way*" (S_wenmiao_R1). The problem was explicitly exposed by a respondent whose house opened directly to the street: "*Everyday it is inconvenient. The street is narrow, there is traffic on this street with cars going through. We cannot walk outside, we cannot park our bicycles, we cannot do anything outside*" (S_wenmiao_P2). At the same time, there were complains about the too old and too small houses and about the lack of private toilets and kitchens (S_wenmiao_R4, S_wenmiao_R6, S_wenmiao_P6). One more problem mentioned was the lack of open space "*for dancing*" (S_wenmiao_R2).

However, four respondents considered that it was good to live on this street, while another respondent referred to the close-ties in the neighbourhood. Other

interviewees considered it was neither too good, nor too bad to live on this street. Yet, someone complained about the migrant workers (S_wenmiao_R4).

Furthermore, some respondents complained about the high number of people, including both residents and visitors, about the too many vehicles passing, about the "*disorganized*" (S_wenmiao_R4) bikes parking and about the narrow segment. In contrast, other residents with businesses on the segment complained about having "*so few people*" (We11) coming on the street, and therefore "*not many customers*" (We1). The residents with businesses further complained that "*some shops have been taken down by the government*" (We1) and that they were "*not allowed to have shops on the street*" (We11), which was considered inconvenient. Yet, another resident considered the street has been improved through the fact that the numerous vendors that used to come to the street in the past have been cleared through government interventions (S_Wenmiao_R3). Furthermore, another respondent complained on the illegal buildings and on the poor sanitation of the street: "*Many shops don't have business licence. They break the load-bearing wall, which is very dangerous. Many people build illegal buildings. Air conditioning machines make noise. There is weak public health infrastructure*" (We3).

Indicator: Improvements needed on the street

Many of the respondents expressed high expectations from the Government. They wanted the Government to demolish the buildings and to compensate them: ***"Of course we want the Government to demolish this area, we waited for too long time"*** (S_wenmiao_P1). Some indicated Xintiandi as an appreciated living area in the Old Town, comparing it to living on Wenmiao Road: *"There is a larger space, better quality [of housing], water system and gas… This place is village inside the city* "(S_wenmiao_R1). Similarly, four other respondents to the structured interviews gave suggestions to demolish all the old buildings, while another respondent suggested to demolish only the illegal buildings (We7).

Yet, another respondent valued the social ties more than her living conditions and was not looking forward to the rebuilding of the area and to relocation: ***"some of us don't want to change"*** (S_Wenmiao_R2).

Other people simply mentioned that the street should be cleaner (S_wenmiao_R4, S_wenmiao_R5) and with better organized bike parking spaces (S_wenmiao_R5). One of the younger respondents (S_wenmiao_R6) preferred to have more shops on this street. Other suggestions concerned widening the street, as

well as improving the situation of the missing toilets and the gas system in kitchens. One respondent wished for the "*government to improve the economy here*" (We1). Furthermore, some residents took pride on the location of their house in the proximity of Wenmiao Temple (for instance, S_wenmiao_R4).

Indicator: Safety Perception

The majority of the respondents considered both the living and the traffic conditions as being 'safe'. Nevertheless, 1-2 ratings for 'unsafe' or 'very unsafe' living and traffic conditions have also been recorded, besides few other neutral responses.

Indicator: Traffic issues

The main traffic issues mentioned concerned the too many vehicles passing, the riders that did not obey the traffic rules and the not enough parking space for the two-wheelers. There were also complains about the narrow street, one of the respondents mentioning that: "*car traffic is not forbidden…traffic is chaotic, both people and vehicles share the same way*" (S_wenmiao_R1). Nevertheless, half of the respondents to the structured interviews considered that there were no traffic issues on this street.

Indicator: Assessment of facilities and services

When asked about the physical facilities for living, the complains concerned mainly the lack of private toilets, of kitchens, and of the gas system. A younger respondent additionally mentioned the lack of bars (S_wenmiao_R5). Concerning the living conditions, some respondents complained about the old houses, in poor conditions, and about the lack of open spaces. Another respondent showed a detailed thinking over the existing situation: "*Infrastructure below the road is not good. The water bed is higher compared to other places in Shanghai so that's why they cannot build high rises.*" (S_wenmiao_R1).

However, having shops on the street was considered convenient (S_wenmiao_R3). In the responses to the structured interviews, half of the respondents rated the facilities as 'convenient'. The other half gave neutral ratings, as well as some ratings indicating 'inconvenient' or 'very inconvenient' facilities.

Indicator: Recurrence of activities and associated reasons

The activities mentioned by the respondents were mainly chatting and sitting outside, but also eating, drinking tea, exercising, playing board games, sunning

clothes, walking pets, walking around and shopping. Still, one respondent considered that there was "*not possible to have any activity on this street*" (We3).

Another respondent to the semi-structured interviews mentioned dancing in the park and playing mah-jong (S_wenmiao_R4), yet another responded specified her dislike for these activities (S_wenmiao_R3).

Besides convenience, other reasons for conducting activities on this street were related to the opened shops on this segment, for instance: "*I own this shop so I have to be here at all time, every day*" (We8). Another respondent referred to the street as "*a meeting point for friends*" (We4).

Indicators: Home territory (feeling at home); Friends and acquaintances

The drawings to the structured interviews (Figure), which indicated the building, the immediate surroundings, or just the location within the building as home territories, did not necessarily correspond with the options chosen from prompts, which generally indicated larger areas (for respondents We1, We5, We6, We8, We9).

Furthermore, the areas indicated with friends and acquaintances varied in size (Figure, Figure), although based on the drawings, social relations were easily formed across the street. From the verbal answers to interviews, similar trends have been resulting, with a varying number of friends and acquaintances mentioned: some respondents mentioned having no friends or acquaintances, other respondents mentioned lots of friends and acquaintances, up to more than 100 people, or up to "*all*" the people living on this segment (We2, We6, We7). Two respondents mentioned that they had much more friends a few years ago, but they moved out (S_wenmiao_R6, S_wenmiao_P4).

Indicator: Meetup places

The most commonly preferred meeting places of the respondents on Wenmiao Road were: on the street itself, on the lane, at home. The people chose to meet their friends also in a coffee shop, in a restaurant, in another public space, or "*somewhere to drink tea*" (We7). One of the respondents who preferred to meet his friends on the street added: "*We all opened shops. Sometimes we go out together for business-related issues*" (We1).

Indicator: Memory of the place (picturing the street)

The respondents that pictured this segment in a positive light made reference to it as a good place for living (We1), as a good place to hang out with friends and to

form close friendships (We4, We8). Additionally, the street was considered with "*a strong sense of the traditional life*" (S_wenmiao_R6), with Wenmiao Temple giving the character of the street (S_wenmiao_R3).

Other less positive summarizing opinions about this street included references to the migrant workers (We2), to the inconvenient traffic and narrow street (We2, We6), to the bad cleanliness, to the old gas system (We5), to the old houses (We7, We12) and to the disorder (We12).

Another response included a drawing of the main streets, of the nearby supermarket and the car parking next to the place where the respondent lived (S_wenmiao_R5).

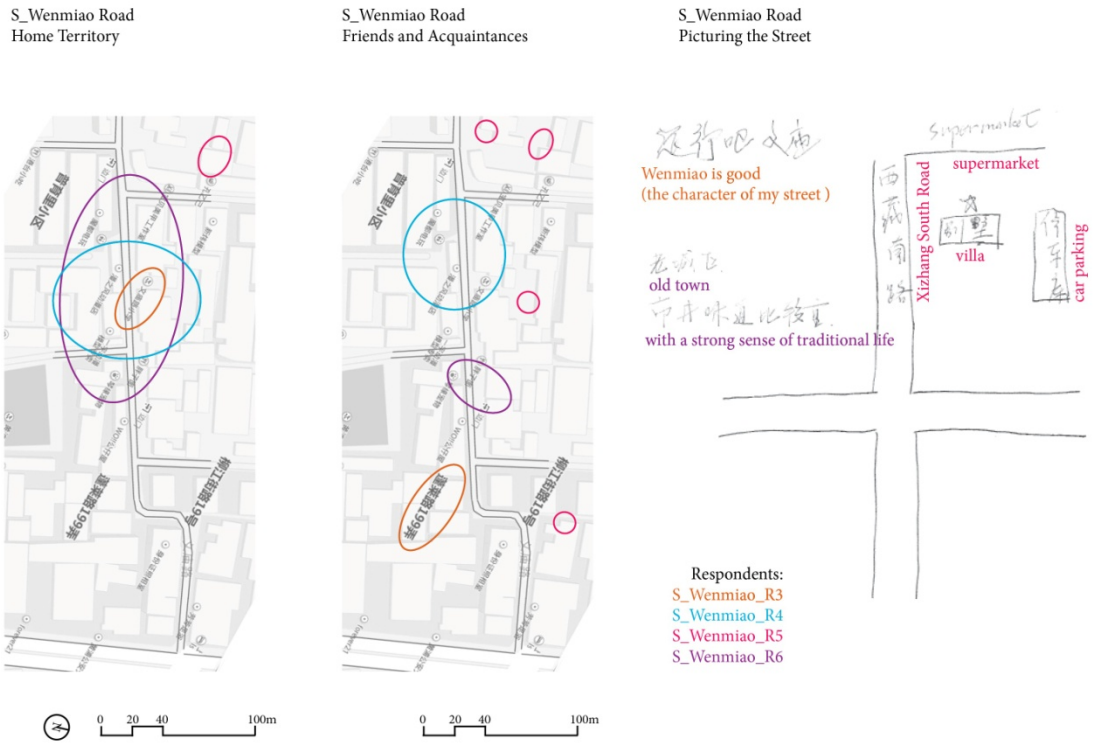


Figure 5: Drawing questions to semi-structured interviews on Wenmiao Road (S set)

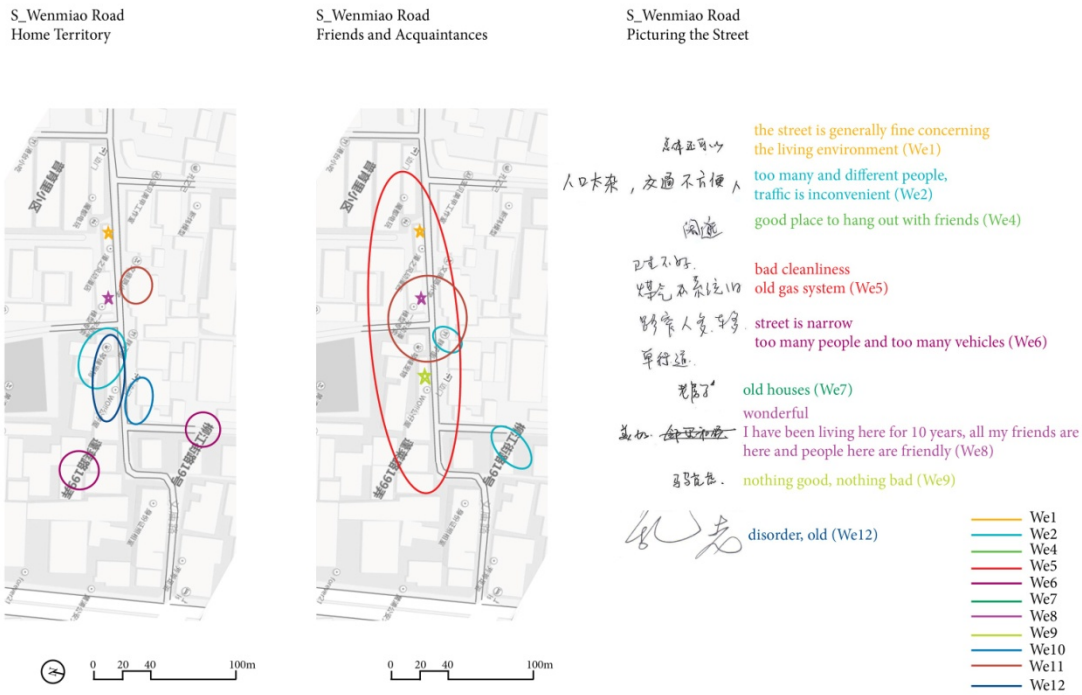


Figure 6: Drawing questions to structured interviews on Wenmiao Road (S set)

S set – Penglai Road

Indicator: Length of time living on the street

The respondents lived on this segment between 3 to 60 years.

Indicator: Bothering issues

Most of the respondents were not bothered about living on this street. Other respondents liked living on this street, as opposed to some respondents who mentioned many things they didn't like about living here. Insightful was the answer of a respondent who mentioned the changes that took place on the street since many of the leather shops were shut down: "*It's comfortable to live here but after the leather shops got closed, the place became a mess [chaotic]. Now it is a place for poor people to gather.*" (S_penglai_R1).

The most often mentioned problems revolved around the street being too crowded with both cars and people. One of the main traffic generators on the street was considered to be the school on the segment: "*On this street there is one of the best schools in Shanghai. At rush-hour there is no space for people to walk*" (S_penglai_R2). Another respondent considered the problem was with the bikes parked "*everywhere on this street*" (S_penglai_R6).

For another respondent, no matter what the problems were, there was "*nothing to do about it* (*没办法, mei ban fa)"* (S_penglai_R4). Nevertheless, someone else saw the conditions of the street changing in better: "*Before there were many things in disorder, many bikes, cars, parking everywhere…Now it is better*" (S_penglai_R5). One more respondent mentioned that he got "*accustomed to the circumstances and the environment*" (S_penglai_R7), despite having old buildings. Other mentioned issues concerned the early street sweeping, "*at 6 o'clock … it's too loud*" (S_penglai_R3), or the built environment that was not aesthetically pleasant, "*not beautiful*" (Pg8).

Indicator: Improvements needed on the street

Three respondents to the semi-structured interviews mentioned how they would like this street with more fluent traffic. Two other respondents mentioned that, ideally, the area should be rebuilt, and then *'the street would become better'* (S_penglai_R4). Three other respondents mentioned the need for an improved cleanliness.

The respondents to the structured interviews additionally mentioned the need to improve the old houses (Pg4), the green space adjacent to the street (Pg6, Pg9), the electric lines (Pg8) or the night lighting (Pg1).

Indicator: Safety Perception

Penglai Road was considered a safe street, having many people that knew each other for a long time (S_penglai_R5). Another respondent added: "*It is very safe, especially in Shanghai, compared to other cities [in China]"* (S_penglai_R7).

Indicator: Traffic issues

Half of the respondents considered that this street had no traffic issues on this segment. For other respondents, the problems concerned having too many vehicles passing by the street, especially at the start and at the end of the school day. The parking problem was additionally mentioned by several respondents. One respondent detailed: "*Traffic is aloud... This is main road… There is no place to park the car…Sometimes there is traffic jam.*" (S_penglai_R4).

Indicator: Assessment of facilities and services

Most of the respondents considered the facilities were convenient. However, there were also neutral responses, as well as responses that included both positive and negative parts, such as: "*The facilities are not very convenient. Not many houses*

have toilets here. The houses are old. But this school nearby is very famous in Shanghai, (…), is the best school in Shanghai." (S_penglai_R7). Another respondent considered the facilities were "*just so-so, no special thing*" (Pg6).

Other respondents appreciated the location of the street in the city: ***"This place, although it has poor living conditions, it is still in the city centre. We can conveniently buy everything we want (…) Whatever you want you can eat, whatever you want you can buy (…) Foreigners are also coming here to see this place"*** (S_penglai_R2). A similar response indicated that the facilities were convenient, "*with a lot of shops in the centre of the city*" (Pg5).

Furthermore, besides the good school on the segment for which people would buy apartments in this area (S_penglai_P2, S_penglai_R5, S_penglai_P7) and the multitude of shops, other appreciated facilities concerned the community sanitary points (S_penglai_R5).

Indicator: Recurrence of activities and associated reasons

The activities mentioned by most of the respondents referred mainly to chatting and to sitting outside, but also to strolling, and to reading the newspaper. Other activities included drinking tea with friends, buying vegetables, and eating. The only reason mentioned for pursuing these activities on the street was the close distance to home, being just "*downstairs*" (Pg5, Pg10).

Indicators: Home territory (feeling at home); Friends and acquaintances

The drawings of the respondents to both the semi-structured and structured interviews presented varying areas associated with the home territories and with the location of acquaintances: either centred around the street (S_penglai_R5, S_penglai_R7), or representing the name of a compound (S_penglai_R3, Pg2), or just the houses of the respondents and the surroundings. Nevertheless, friendship relations were forming easily across the street. However, the mentioned numbers of friends and acquaintances varied from having no friends, to having around 10 friends, to "*they are all my friends…around 50-60 people in total*" (S_penglai_R3).

Indicator: Meetup places

The most common places for meeting friends were on the street itself and on the lane. Few respondents mentioned meeting their friends also at the shops and at home.

Indicator: Memory of the place (picturing the street)

The respondents showed contrasting ways of picturing their street. Some respondents expressed more negative opinions, considering the street with "*disorder*" and with "*old buildings*" (Pg6, Pg8, Pg9, Pg10). Others considered the street segment was just fine (Pg2, Pg3), while another respondent perceived the street as "*prosperous*" (Pg1). Furthermore, the respondents to the semi-structured interviews were proud of the *lilong* style of the houses (S_penglai_R3, S_penglai_R7).

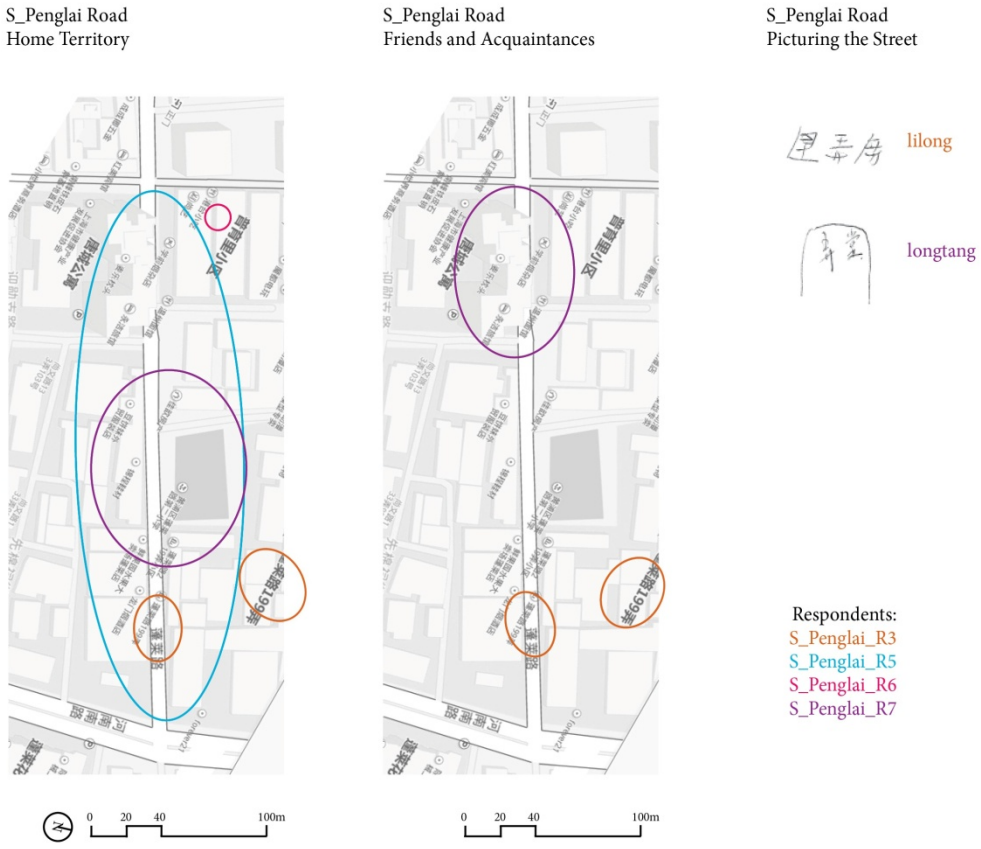


Figure 7: Drawing questions to semi-structured interviews on Penglai Road (S set)

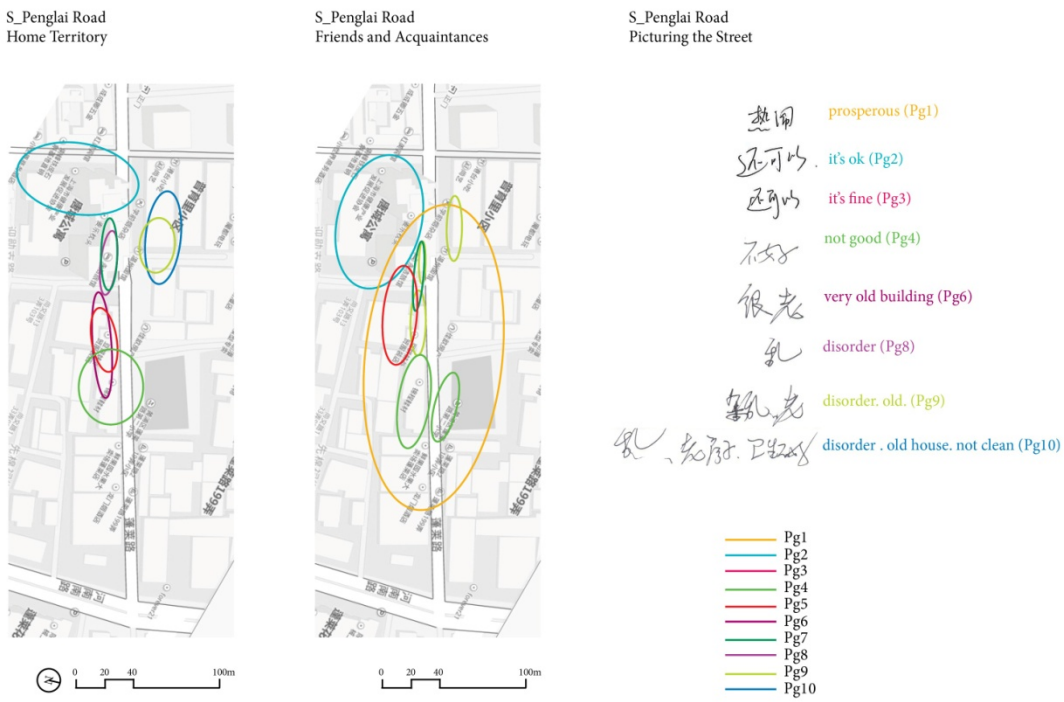


Figure 8: Drawing questions to structured interviews on Penglai Road (S set)

M set – Jiashan Road

Indicator: Length of time living on the street

The respondents lived on Jiashan Road between 9 and 60 years.

Indicator: Bothering issues

Many respondents to the semi-structured interviews considered there were no issues with this street. Someone else answered that, even if there were issues, there was nothing to do about it: '*meibanfa*'(M_jiashan_R1).

Similarly, for half of the respondents to the structured interview, there was nothing that bothered them about living on this segment. Additionally, one respondent simply complained that *"life is not convenient"* (Ji13). Nevertheless, for four other respondents, the main bothering issues concerned the too many vehicles, especially the too many public bikes. Someone else complained about the old buildings and about the bad pavement condition in the compound (Ji1). Other bothering issues concerned the presence of migrant workers (Ji3, Ji12). Yet, one migrant worker also indicated several minor social issues on the street, although nothing major (M_jiashan_R3). Some past dissatisfactions concerned the loud bars frequented by foreigners on the intersecting Yongkang Road (M_jiashan_R2), which have recently been closed.

Other mentioned dissatisfactions concerned the too little green space, the too much parking space, and the vegetable market moved away from this street.

Indicator: Improvements needed on the street

Four respondents to the structured interviews indicated improvements needed to the housing conditions. As they detailed, the "*living environment is good, all the problems are related to the buildings*" (Ji2), especially when many of the houses were "*built more than 100 years ago*" (Ji1), and there has been done only a "*surface renovation of the buildings*" (Ji3).

In the response to the semi-structured interviews, one resident suggested to maintain the area with its original features and building style (M_jiashan_R1). Furthermore, one lady expressed her preferences for a street "*with polite people, with civilians*", mentioning that Jiashan Road was inhabited by "*good people…school teachers, musicians…*" (M_jiashan_R2). For respondent (M_jiashan_R3) it was important to *"keep the street free",* so he can conduct his informal shoes-repairing activity.

Indicator: Safety Perception

On Jiashan Road, the overall safety ratings indicated 'safe' or 'very safe' living and traffic conditions. However, the presence of migrant workers was the reason for which a respondent gave a neutral safety rating (J12).

Indicator: Traffic issues

The traffic and transport were considered convenient by most of the respondents. For example, respondent M_jiashan_R3 mentioned: "*Traffic is ok, traffic jam doesn't happen often".* Another respondent added that "*in the past there were so many cars*" (Ji11), but not anymore at the time of the interview. Nevertheless, several people complained on the too many parked vehicles (Ji9, Ji10, Ji12), especially public bikes (Ji12).

Indicator: Assessment of facilities and services

Two respondents explicitly mentioned the fact that the physical facilities for living were not so good in the past, but they have been recently improved through the intervention of the government. This has led to improved living conditions but also the rising rents: "*Now it is very expensive to rent a house. The government added toilet, kitchen, and other facilities*" (M_jiashan_R2). The non-residents (M_jiashan_n.R1) and (M_jiashan_n.R2) mentioned about the convenience of having a school and a hospital nearby. Nevertheless, another respondent considered

that the overall environment was "*not better than before*" because of the "*many immigrants*" (M_jiashan_R1).

Shared opinions also resulted through the ratings to structured interviews, where although most of the respondents rated the facilities as 'convenient' or 'very convenient', there were also two respondents who rated the facilities as 'inconvenient', with associated comments indicating "*not so good*" (Ji12), or just "*so-so*" (Ji10, Ji11) facilities.

Indicator: Recurrence of activities and associated reasons

The activities mentioned were mainly: chatting and sitting outside, strolling, but also eating, shopping, and walking pets, on an almost daily basis. Few other respondents mentioned drinking tea, playing board games and exercising, as well as preparing food.

Indicator: Home territory (feeling at home); Friends and acquaintances

Based on the responses to prompts, the home territories spread on the whole block (Ji2, Ji3, Ji5), or on the whole the street (Ji4). Yet, for another respondent, nothing felt at home (Ji1). Furthermore, the drawing representations of the home territories enclosed mainly the buildings where the respondents lived and the immediate surroundings, but also the names of the compounds (M_jiashan_R1). Another respondent marked the areas that she enjoyed most (M_jiashan_R2).

The location of friends and acquaintances was approximately corresponding to the indicated home territories, but some respondents indicated having friends and acquaintances across the street as well. Similarly, the responses received concerning the numbers of friends and acquaintances on the street varied. Some respondents mentioned few friends and acquaintances, others mentioned around 100-200 familiar people (M_jiashan_R2; M_jiashan_n.R2), while some respondents considered "*all the colleagues living here*" (Ji3) as their friends.

Indicator: Meetup places

The most commonly mentioned place for meeting friends on Jiashan Road was the street. Some respondents added that they "*sometimes join[ed] the activity*" on the street (Ji8), or that they met each other by chance on the street and on the lane (Ji12, Ji13). A few other respondents mentioned the lane or the park as places to meet friends.

Indicator: Memory of the place (picturing the street)

The way the participants pictured their street included comments such as "*downstairs shops, upstairs house*" (Ji6) reflecting the character of the *Shikumen* housing (M_jiashan_R1; M_jiashan_R2). Another comment reflected the general feel of the built environment: "*congested – doesn't feel good, with pressure, feels bad. Space is too small*" (Ji7). Two other responses made reference to the buildings as being old (Ji8), and although with renovated facades, the interiors were still in bad conditions (Ji9). Another comment indicated the main activity on the street as "*playing mah-jong for fun*" (M_jiashan_R2).

Figure 9: Drawing questions to semi-structured interviews on Jiashan Road (M set)

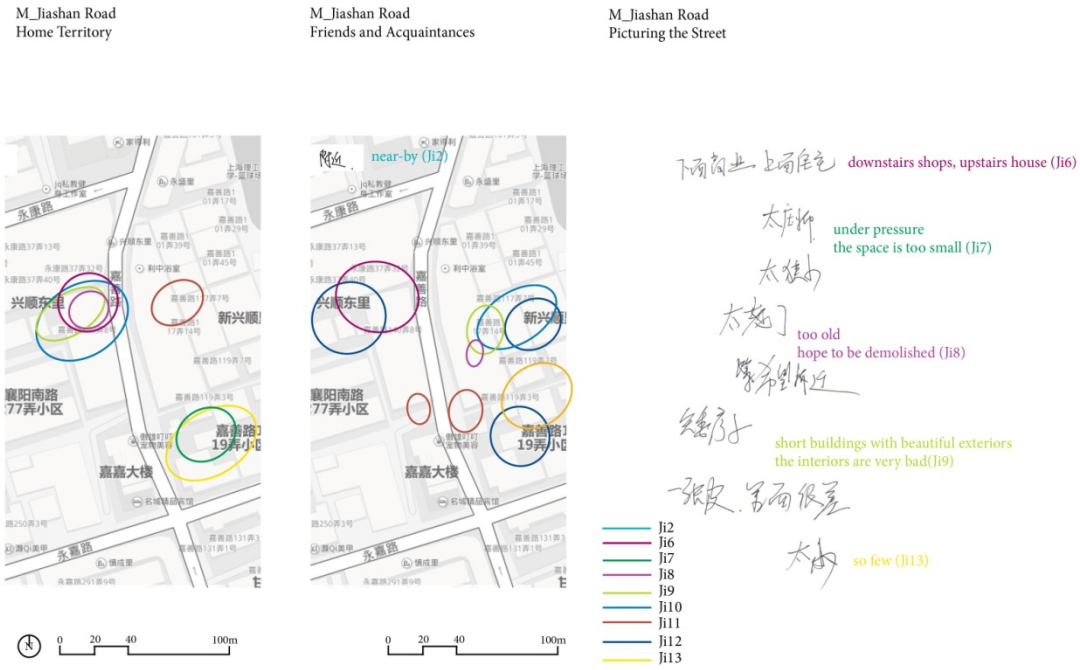


Figure 10: Drawing questions to structured interviews on Jiashan Road (M set)

M set - Xiangyang Road

Indicator: Length of time living on the street

The respondents lived on Xiangyang Road between 2 years and 28 years, while another senior interviewee mentioned living on the segment "*since childhood*" (M_xiangyang_R1).

Indicator: Bothering issues

For some respondents, there was nothing bothering about living on this street, adding that "[*here it is] very good*" (Xy4), as well as being "*accustomed to this road*" (Xy9). Another respondent detailed: "*There is nothing that I dislike. Here it is good for living, it is convenient to buy things, everything is very convenient*" (M_xiangyang_R1).

Other respondents indicated the inconvenience of the "*many cars, many people, loud noise*" (Xy6) and of the fact that "*the breakfast shops have been closed*" (Xy5), "*removed by the government*" (Xy3). Another respondent hoped "*for the road to be wider*" (Xy7).

Indicator: Improvements needed on the street

For the majority of the respondents there was nothing to be improved about this segment, as they considered it was "*just fine*" (Xy2, Xy9), and that "*now is better than before*" (Xy10). Another respondent added: "*I don't care about this*

[matter]" (Xy4). Nevertheless, few respondents hoped for "*fewer vehicles on the street*" (Xy6) and suggested to "*add breakfast shops*" (Xy5).

Yet, in the responses to semi-structured interviews, one respondent mentioned his wish for "*taller buildings, in a living unit*" in order to be "*clean*" (M_xiangyang_R1).

Safety Perception

One respondent gave negative ratings to both the living and the traffic conditions. Besides few other neutral ratings, the rest of the respondents rated both the living and the traffic conditions as 'safe' or 'very safe'. The reasons associated with some of the neutral ratings indicated the "*many vehicles*" (Xy3), and the "*too narrow road*" (Xy10). The comments associated with the positive ratings indicated that: "*Safety is based on regulations*" (Xy4, Xy9) and that "*nothing unsafe happens on this street*" (Xy4), or that the area is very safe, being part of the "*city center*" (M_xiangyang_R3). Respondent (M_xiangyang_R2), however, considered it was not safe because her bike got stolen.

Traffic issues

For some people there were no traffic issues, for others the inconveniences concerned the "*one-way*" street (M_xiangyang_R1, Xy1), the "*too many vehicles*" (Xy6), to the "*too narrow*" segment (Xy7, Xy10). Transportation issues also resulted from comments that indicated a "*too long waiting time for the bus*" (Xy3) and that "*By bike it is not convenient, and it is conflicting with people walking… The public bikes are so many*" (Xy10). Nevertheless, other respondents considered the transport was convenient, with the metro station nearby (M_xiangyang_R3), while another respondent specified: "*I feel that here is not so crowded, it is convenient for me to go to work and come back home"* (M_xiangyang_R2).

Indicator: Assessment of facilities and services

The same respondent that rated the living and the traffic conditions as 'very unsafe' rated the physical facilities for living as 'very inconvenient'. Furthermore, while about half of the respondents remained neutral, most of the respondents considered the facilities as 'convenient' or 'very convenient'. Some of the factors that provided convenience were the nearby supermarket (M_xiangyang_R3), and the commercial facilities that could be accessed by foot, otherwise, a "*cell phone can solve any problem*" (Xy10). However, concerning the living conditions, complains

were about the fact that "*These are all old houses, all public housing, small living place*" (M_xiangyang_R3).

Indicator: Recurrence of activities and associated reasons

The most common activities mentioned on Xiangyang Road were chatting and eating on the street side on an almost daily basis. Other commonly mentioned activities were shopping for groceries, watching the children play, exercising, siting outside, sunning clothes, reading the newspaper. Walking pets and playing mah-jong and other board games have also been mentioned, but less. Besides the reasons of convenience, one respondent mentioned that there was "*no better choice*" (Xy8) of other places to conduct his activities. Nevertheless, other respondents mentioned that, besides working, they had no time for other activities (M_xiangyang_R2; Xy4), although "*the conditions are better here than in another place where I used to live*" (Xy4).

Indicators: Home territory (feeling at home); Friends and acquaintances

For about half of the respondents, the home territory enclosed the community where they were living (Xy3, Xy7, Xy10, M_xiangyang_R1, M_xiangyang_R2) or even a wider area across both sides of the street (Xy1). Nevertheless, for some respondents the home territory was represented by smaller areas around their apartments, while two of the complaining respondents considered that no place felt at home (Xy3, Xy9).

Less responses were received concerning the location of friends and acquaintances on the provided map. Some respondents had no friends (Xy5, Xy6, Xy8), two other respondents indicated friends in the same areas as their home territories (Xy7, Xy9) and only one respondent encircled the name of his community as the location of his acquaintances (Xy3).

Similar responses have also been received verbally, with a varying number of friends and acquaintances mentioned: from none, to 2 friends because of having "*no time*" (M_xiangyang_R2), to 20-30 friends on the segment, to the number of friends depending on "*my child's classmates [and] their families*" (M_xiangyang_R2). An older respondent mentioned: "*my friends have passed away*" (Xy8). The respondents had acquaintances only on their side of the street, or on both sides of the street.

Indicator: Meetup places

The places where the respondents most usually met their friends, were, as mentioned: on the street itself, on the lane, in a restaurant, in a coffee shop, at home, in a park. Some respondents detailed that "*[it's] downstairs*" (Xy9), "*we can meet and chat with each other*" (Xy4, Xy9).

Indicator: Memory of the place (picturing the street)

The overall opinions of the respondents referred to the condition of the old housing with "*more than one family living in one old house*" (Xy5), but also to the "*Lilong style*" (Xy6) of the buildings. Another respondent made reference to the business environment of the street with small shops but no supermarket (Xy10), while for respondent (M_xiangyang_R1) important were the main interest points in the four directions from where he lived.

Figure 11: Drawing questions to semi-structured interviews on Xiangyang Road (M set)

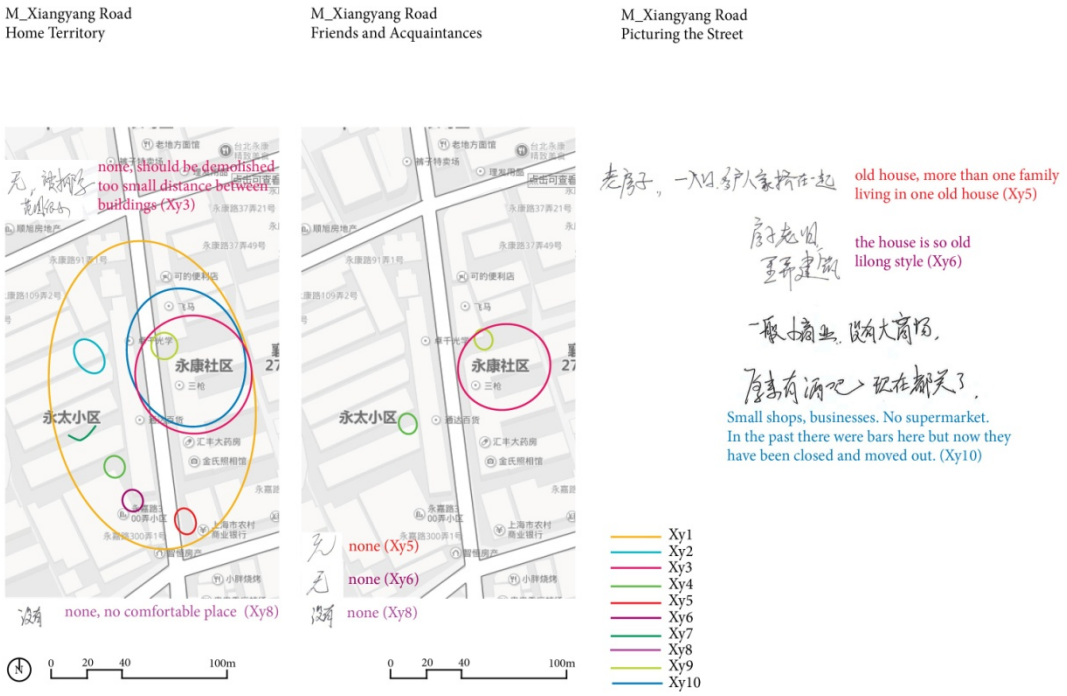


Figure 12: Drawing questions to structured interviews on Xiangyang Road (M set)

M set - Shaanxi South Road

Indicator: Length of time living on the street

The respondents lived on Shaanxi South Road between 5 and 70 years.

Indicator: Bothering issues

For most of the respondents there was nothing bothering them about living on this segment, adding that "*everything is good*" (Sx9), or that "*We like it here, we like everything*" (M_shaanxi_R1). Furthermore, while another respondent mentioned that he simply got "*accustomed to the environment*" (M_shaanxi_R3), other respondents mentioned their dissatisfaction with being "*far from the market*" (Sx1).

Dissatisfactions also concerned the "*traffic jam*" (Sx5), and the fact that there were "*too many cars but the green space too small*" (Sx6). Another respondent exposed problems with crossing the street (M_shaanxi_R3). Few other responses referred to the big number of people and of cars: "*This street is crowded with many people*" (M_shaanxi_R2); "*Now there are many cars. Because a lot of people came to live in Shanghai, now is very crowded so the quality of the traffic and of the environment has declined*" (M_shaanxi_R1). In this manner, another comment referred to the fact that "*the culture of the street is becoming changed*" (M_shaanxi_R2) because of the migrant workers coming to live in Shanghai.

Nevertheless, two respondents indicated that they could speak openly with the neighbours about any problem of the street.

Indicator: Improvements needed on the street

While respondent (M_shaanxi_R1) seemed quite satisfied with the existing conditions, other residents expressed many ways in which the street could be improved. One respondent mentioned his hopes for fewer people and improved facilities, as there were *"no toilets and no private kitchens in houses"* (M_shaanxi_R2). The same respondent added that: *"the people living here should be the native people, not the immigrants"* and that it is important to *"preserve the cultural soul"* (M_shaanxi_R2) of the area. A younger respondent mentioned explicitly his views on gating the area, preferring to ideally live in a modern gated compound (M_shaanxi_R3).

Furthermore, the respondents to the structured interviews considered that improvements were needed about the pedestrian way (Sx6) and the parking space (Sx2, Sx6). One respondent added that "*the road should be wider and with fewer cars*" (Sx7), while another respondent was not satisfied with the old houses, which could not be replaced based on "*the policy of the government*" (Sx8), being a historically protected area.

Indicator: Safety Perception

Both the living and the traffic conditions on Shaanxi South Road were rated by the majority of the respondents as 'safe' or 'very safe'. To the ratings, someone simply added that "*the things I see are safe*" (Sx10).

Indicator: Traffic issues

Although some respondents did not find issues to the traffic and transport on this segment, other respondents mentioned dissatisfactions concerning the not enough parking area, the too many vehicles, the traffic jam, but also about the fact that the "*pavement is too narrow*" (Sx3). Additionally, one respondent considered a traffic light was needed in the middle of the segment, besides the zebra crossing (M_shaanxi_R3). Another respondent (M_shaanxi_R2) considered the street was too narrow for the actual flow, in the same time not being satisfied with the one-way direction.

Still, for some respondents, the traffic was just "*so-so*" (Sx7, Sx10), while someone else added that: "*I got accustomed with the environment [of the street] and I don't find problems*" (Sx7).

Indicator: Assessment of facilities and services

In what concerns the physical facilities for living, the majority of the respondents rated them as 'convenient'. The positive responses made reference to the fact that: *"Before we didn't have toilet, but now we have. For many years, the government helped us improve the facilities… we now have where to wash clothes and where to dry them outside…all is good now*" (M_shaanxi_R1). The same respondent added that the physical environment was good, with trees that "***cool the weather***", despite the old buildings in which "*many old people live*" (M_shaanxi_R1).

Another respondent considered that the facilities were poor, although he admitted that they have been improved (M_shaanxi_R2), adding that it was convenient "*to go to the doctor, to buy something*", however "*the quality of living is not so good*" (M_shaanxi_R2). Another respondent commented that the facilities were "*convenient, if one has money*" (Sx8). Furthermore, in the response to another question, someone else indicated the too long distance to the market (Sx1).

Indicator: Recurrence of activities and associated reasons

The most common activities mentioned by the respondents on Shaanxi South Road were chatting, playing board games and shopping. A few respondents also indicated sitting outside, eating, drinking tea, cooking, reading the newspaper, sunning clothes, watching the children play, however these activities happened more often on the lanes, rather than on the street.

Besides the common reasons of pursuing these activities in close distance to home, one respondent added "*I was born here, I am familiar with everything*" (Sx4). In contrast, a younger respondent indicated that he had no activities on this street, except for "*sleeping"* (M_shaanxi_R3).

Indicators: Home territory (feeling at home); Friends and acquaintances

When choosing from prompts, three respondents indicated feeling at home on the entire block, although their graphical representations enclosed only a portion of their communities (Sx2, Sx3, Sx4). Additionally, respondent (M_shaanxi_R1) specifically mentioned that he felt at home in the elderly centre adjacent to his compound.

For most of the respondents, the area of their perceived home territory coincided with the area where they had friends and acquaintances (Figure., Figure). Nevertheless, few respondents indicated acquaintances on both sides of the street in

their drawings (Sx6, Sx7, Sx8, Sx9), also reflected through their verbal responses. Concerning the numbers of friends and acquaintances, half of the respondents mentioned having a lot of friends and acquaintances, for which an enveloping response was: "*The people that live here, we all grew up together for 60-70 years*" (M_shaanxi_R1). Other respondents had less friends, of which a younger respondent mentioned only "*5 family members*" (M_shaanxi_R3) on the same segment.

Indicator: Meetup places

A high response rate was received for meeting friends on the lane. Other mentioned places for meeting friends were on the street, at home, in the park or in the courtyard. Besides convenience, other given reasons for the preferred meeting places were the "*familiar environment*" (Sx3), "*safety*" (Sx5), and the possibility to "*go out of the house and meet each other*" (Sx9). One younger respondent (M_shaanxi_R3) indicated the fact that many old people live in the area while the activity centres for the elderly were few.

Indicator: Memory of the place (picturing the street)

When asked how they pictured their street, several respondents made reference to the old buildings (Sx1, Sx7, Sx10). One respondent described the street as "*clean*" (Sx5), while for another respondent the street vegetation was fine (Sx2). Others respondents were proud of the French style of the buildings (M_shaanxi_R1) and specifically proud of the 'Cité Bourgogne' community, giving a full description of its history and of its actual use (Sx3), or representing a map of the neighbourhood, additionally including the nearby elderly centre and the library (M_shaanxi_R2).

M_Shaanxi South Road
Home Territory

M_Shaanxi South Road
Friends and Acquaintances

M_Shaanxi South Road
Picturing the Street

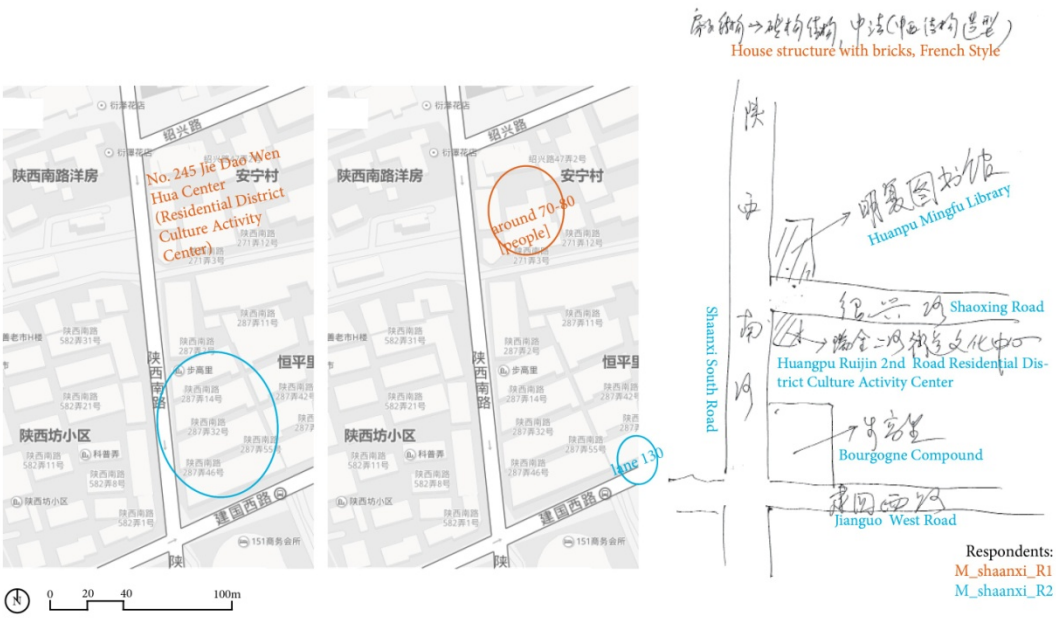


Figure 13: Drawing questions to semi-structured interviews on Shaanxi South Road (M set)

M_Shaanxi South Road
Home Territory

M_Shaanxi South Road
Friends and Acquaintances

M_Shaanxi South Road
Picturing the Street

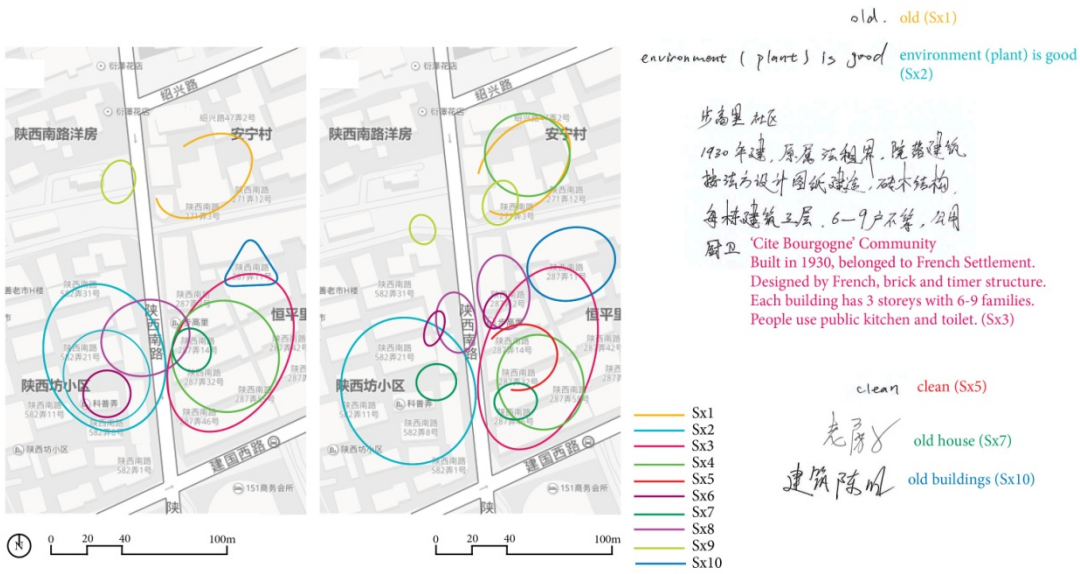


Figure 14: Drawing questions to structured interviews on Shaanxi South Road (M set)

L set - Mengzi West Road

Indicator: Length of time living on the street

The interviewees lived on this segment between 2 months and 40 years.

Indicator: Bothering issues

For some respondents, there was nothing bothering them about living on this street, as it was with "*no good, no bad*" (Mz7) issues, while other respondents liked living on this street.

Furthermore, some respondents (L_mengzi_R2, L_mengzi_R3, L_mengzi_R5) considered there were no problems or embraced the '*meibanfa*'(nothing to do about it).

Moreover, for some respondents, bothering was the high number of randomly parked vehicles (Mz10, Mz3, L_mengzi_R1, L_mengzi_R5, L_mengzi_R4), for instance: "*This street is ok...but maybe too many vehicles are parked – bikes and cars*" (L_mengzi_R4). Another respondent mentioned his discontentment with the environment of the street, considered "*so terrible, not clean, not neat*" (Mz6).

Yet, one more respondent exposed a feeling of nostalgia about how the street used to be before its renewal, with many market stores and activities (L_mengzi_R1).

Indicator: Improvements needed on the street

For some respondents, there was "*nothing to be improved*" (Mz8), as the street area "*has improved and [it] became better*" (Mz7). Similarly, two younger respondents living in the high-class compound (L_mengzi_R2, L_mengzi_R4) were satisfied with the way the street was at the time of the interview.

Furthermore, respondent (L_mengzi_R3) re-emphasized that the street was the responsibility of the government and preferred not to express his opinion. One more respondent also considered that there was nothing he could do about this street, however he added that "*it would be better if there will be fewer cars parked on this street* "(L_mengzi_R5). Other respondents suggested to add more parking space (Mz1, Mz9), in contradiction with the suggestion of another respondent for lowering the number of parking spots (Mz10). Someone else suggested a commercial renovation through "*bring[ing] new retail stores*" (Mz4) on the street.

Indicator: Safety Perception

Most of the respondents considered the street was ‘safe’ or ‘very safe’ for living and from traffic. One respondent detailed that: “*It is very safe because surveillance cameras are all around us*” (L_mengzi_R1). Additionally, several other neutral ratings were given for safety from traffic. Another issue concerned the stealing of batteries from electric bikes (L_mengzi_R3).

Indicator: Traffic issues

Half of the respondents indicated no traffic problems, one respondent added that “*it’s ok, not the main road*” (Mz7). Transport was also considered convenient, having the metro station nearby. Nevertheless, throughout responses, issues concerning the disordered parking have been mentioned.

Indicator: Assessment of facilities and services

The majority of the respondents considered the facilities were convenient. Someone living in the mid-rise compound mentioned the convenience of the medical point and of the elderly activity rooms within the compound (L_mengzi_R3). Appreciated was also the market on the street, but still, someone complained that “*the price of vegetables is too high*” (L_mengzi_C1) after the compound has been rebuilt. Another respondent confirmed the often renewed facilities in the compounds, but also the growing renting and purchasing housing prices: “*On this side is expensive, there is not so expensive. It’s one compound, but the fengshui (风水) is not the same*” (L_mengzi_R1).

Some complains have been recorded on the fact that within the mid-class compound, “*Our green space is very small*” (L_mengzi_C1). Another respondent stated: “*This street is very quiet*” (L_mengzi_R4).

Indicator: Recurrence of activities and associated reasons

The most common activities mentioned were chatting with neighbours, sitting outside, strolling and walking to the park, but also walking pets, watching the children play, drinking tea, eating, watching the people around. Other activities such as exercising, dancing, playing board games have also been mentioned, although two respondents mentioned how they never liked to get involved into playing games.

The reasons mentioned for conducting activities on this street were mainly the convenience, “*it is just in front of my home, under the stairs of my apartment*” (Mz8), but also the fact that this street was the place to “*live and work*” (Mz5).

Indicators: Home territory (feeling at home); Friends and acquaintances

From the drawing questions (Figure, Figure), it can be clearly observed how for some respondents, the areas where they felt at home coincided with the areas where their acquaintances were located (Mz1, Mz6, Mz8, Mz9, L_Mengzi_R4). For one respondent, places such as "*RiYueGuan [shopping mall]; the Vegetable market; the Kindergarten*" (Mz4) also made her feel at home.

The home territories and the location of acquaintances were indicated mainly on the same sides of the street where the respondents lived, showing the lack of interaction across the street. Only one respondent living in the medium-class compound indicated having friends in both the compounds built across the street (Mz5). Similar trends have also been reflected in the verbal answers concerning friends and acquaintances. Furthermore, about half of the respondents mentioned more than 15 friends and acquaintances on the same street. However, while other respondents mentioned less acquaintances, someone mentioned around 100-200 people as acquaintances within his compound (L_Mengzi_R1).

Indicator: Meetup places

The most often mentioned places for meeting friends by the respondents on Mengzi West Road were: on the street itself, on the lane, in a restaurant, in a coffee shop. Fewer respondents mentioned meeting friends in a park, in a library, at home. Someone else preferred to meet her friends at the Opera House and in the countryside (Mz3). Besides convenience, the respondents preferred to meet their friends in places where they could "*chat while eating*" (Mz9), but also in places with "*few people, [and] quiet*" (Mz4).

Indicator: Memory of the place (picturing the street)

When asked about how they pictured their street (Figure, Figure), the respondents expressed their appreciation for the surrounding, "*beautiful*" (Mz9) environment and for the facilities, however some inconveniences within the compounds have also been mentioned (Mz3).

When picturing their street, the respondents highlighted: the nearby park (L_mengzi_R1), the green space (L_mengzi_R4), the market (L_mengzi_R4) and the way the government "***cared for the [re]construction of the compound***" (L_mengzi_R3).

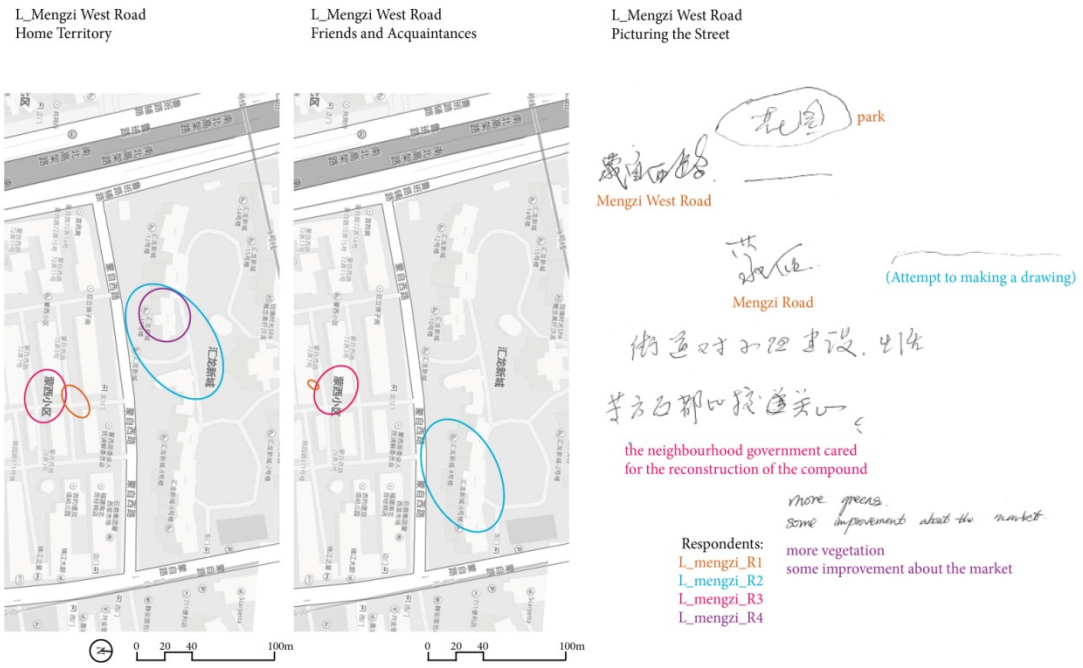


Figure 15: Drawing questions to semi-structured interviews on Mengzi West Road (L set)

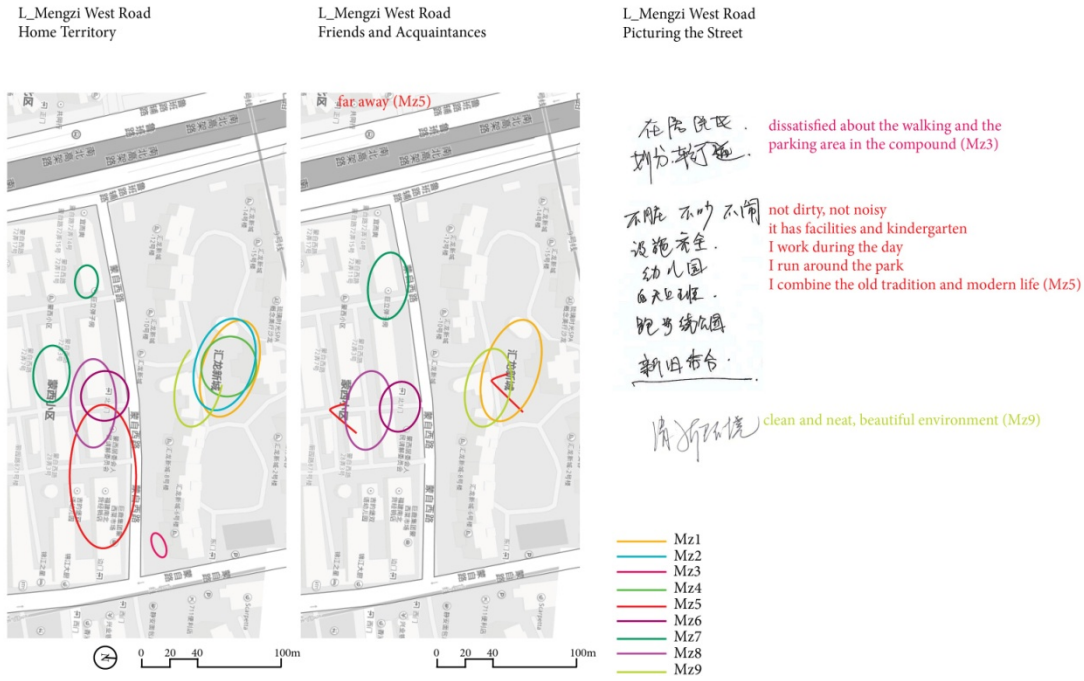


Figure 16: Drawing questions to structured interviews on Mengzi West Road (L set)

L set - Liyuan Road

Indicator: Length of time living on the street

The respondents lived on this segment between 2 months and 60 years.

Indicator: Bothering issues

Most respondents were not bothered by anything when living on Liyuan Road, they liked living on this street, of whom one respondent mentioned wholeheartedly: "*I like all the things here*" (L_liyuan_R4). Another respondent mentioned getting accustomed to the area: "*We like living on this street because we got accustomed with living here. It is very good here*" (L_liyuan_R3). However, several respondents mentioned the issue of the parked vehicles, occupying the street space, especially the public bikes being "*in disorder, everywhere*" (Li11). Respondent (L_liyuan_R4) indicated explicitly that there are "*small problems (…) with the parked cars*", however "*the traffic doesn't have problems*". Two other respondents were bothered by the dancing taking place in the square across the intersection with Mengzi Road, referring to it as "*noisy and disturbing*" (Mz1).

Indicator: Improvements needed on the street

Three respondents did not see any improvements needed for this segment of Liyuan Road, of which one respondent mentioned that she "*never thought*" about this matter (Li7). Other respondents suggested to add "*more green space*" (Li12), to solve the issue of the disordered parking, and to manage the square dancing (Li1, Li8). Additionally, one respondent mentioned the need for "*better sanitation, civilization, tidiness, better management for transportation*" (Li2). Other respondents suggested the need for elevators in the mid-rise housing buildings, and the hope for houses that are "*cheaper to rent*" (Li3).

Furthermore, other respondents hoped to have less bikes and less cars parked on the street. Additionally, one respondent emphasized that the circulation modes should be kept separated: "*It is better if the walkway remains walkway, cycleway remains cycleway, and driveway remains driveway*" (L_liyuan_R4).

Indicator: Safety Perception

The majority of the respondents considered this street as safe for living and from traffic. Two other responses were neutral, while another respondent mentioned that "***the street is not safe because of so many cars, especially for elder people***" (L_liyuan_R2).

Indicator: Traffic issues

For some respondents, there were no traffic issues on this segment. Other respondents mentioned the too many vehicles in "*disorder*" (Li3), the too much parking (Li11, L_liyuan_R1), the e-bikes and public bicycles that were not respecting the traffic rules (Li2). Another respondent mentioned a positive change: "*Before, some people always parked their vehicles randomly, there was no rule. Now there has been brought some improvement, the situation in Shanghai is getting much better*" (Li2).

Indicator: Assessment of facilities and services

For the majority of the respondents, the physical facilities for living were convenient. Some respondents explicitly mentioned their satisfaction with the shopping and the transport options, for instance: "*we have everything here, there is a park, a hospital, everything…the transport is convenient…hotel, shops...it is convenient for living…the green space is also good in our compound*" (L_liyuan_R4). Nevertheless, another respondent, although overall satisfied with the facilities, mentioned her discontentment with the small living space: "(…) *Down here we do laundry…The housing space is very small*" (L_liyuan_R2).

Indicator: Recurrence of activities and associated reasons

The most often-mentioned activities carried in the proximity of the street were buying vegetables and fruits, chatting, eating, drinking tea, strolling to the nearby park, sunning clothes, on an almost daily basis. Watching the children play, playing mah-jong with friends and neighbours, and exercising have also been mentioned. One respondent specified explicitly that: "*I don't go dancing*" (L_liyuan_R2), in reference to the common dancing activity taking place at the park entrance.

Besides convenience, the reasons for performing activities on this segment were that: "*[there is] good environment, the active residents have good educational background*" (Li8), that "*Job is here. Home is here*" (Li6), that "*the park provides [recreational] opportunities*" (Li2), as well as the fact that "*there are sufficient shops*" (Li3).

Indicators: Home territory (feeling at home); Friends and acquaintances

For many respondents, the home territories included the building where the respondents lived and the surroundings, however, some respondents indicated as

home territory wider areas across the street (L_Liyuan_R3, Li1, Li9), or the name of their compounds (L_Liyuan_R1, Li5, Li6, Li12).

Similarly, some respondents had friends and acquaintances mainly around their buildings, while others had acquaintances within the compound (Li5, Li6, Li12) or on wider areas that spread across the street (L_Liyuan_R3, L_Liyuan_R4, Li1, Li2, Li4). Similar trends regarding the formed friendships resulted also from the verbal answers to the interviews: some respondents mentioned none or less than 6 friends and below 10 acquaintances; other respondents indicated from 20 friends to "*a few tens of [familiar] people*" (Li9), to hundreds of acquaintances: "*I am relaxing with all my neighbours. Within the compound they all are people I am familiar with*" (L_liyuan_R1).

It can be observed that the area where people felt at home it was also the area where they generally had friends and acquaintances, but for the more social respondents, friendship relations were easily formed within their entire compounds, as well as across the street. In this manner, the street was not seen as a barrier.

Indicator: Meetup places

The preferred place for meeting friends was at home for most of the respondents to the structured interviews on Liyuan Road. Other meeting places mentioned were on the street itself, on the lane, in a restaurant, in the park or in the library. Besides convenience, some respondents preferred to meet their friends "*somewhere that has seating, [is] quiet, and [has a] friendly environment*" (Li2).

Indicator: Memory of the place (picturing the street)

Many respondents had an overall positive perception of the street space and of the housing conditions, appreciating the green space, the quietness, the friendly neighbourhood and the new buildings, as it can be seen in Figure and Figure. Someone else added "*I like this street very much. (…) I have lived here for so long. I'm used to it*" (Li4). Other comments illustrated both positive and less positive aspects about the environment of the street (Li7). Yet, some respondents expressed dissatisfaction comparing the new high-rise compounds with the older compounds that had less green space, and vehicles "*parked anywhere"* (Li2), as well as dissatisfactions concerning the high number of people and especially of migrant workers (L_liyuan_R2, Li1).

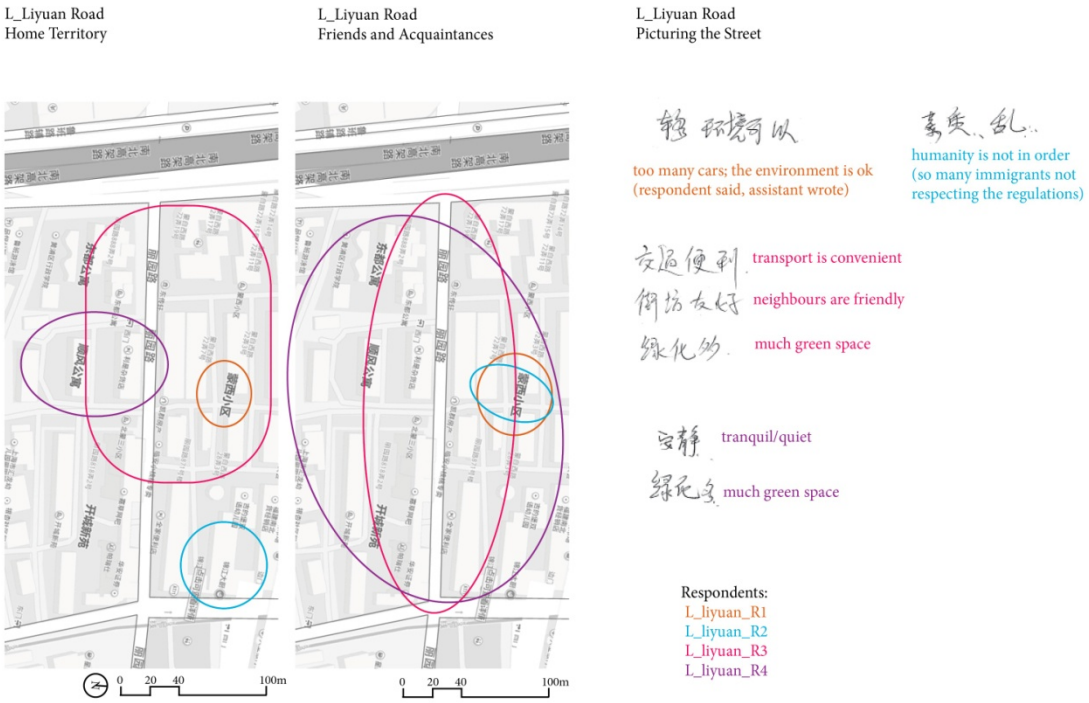


Figure 17: Drawing questions to semi-structured interviews on Liyuan Road (L set)

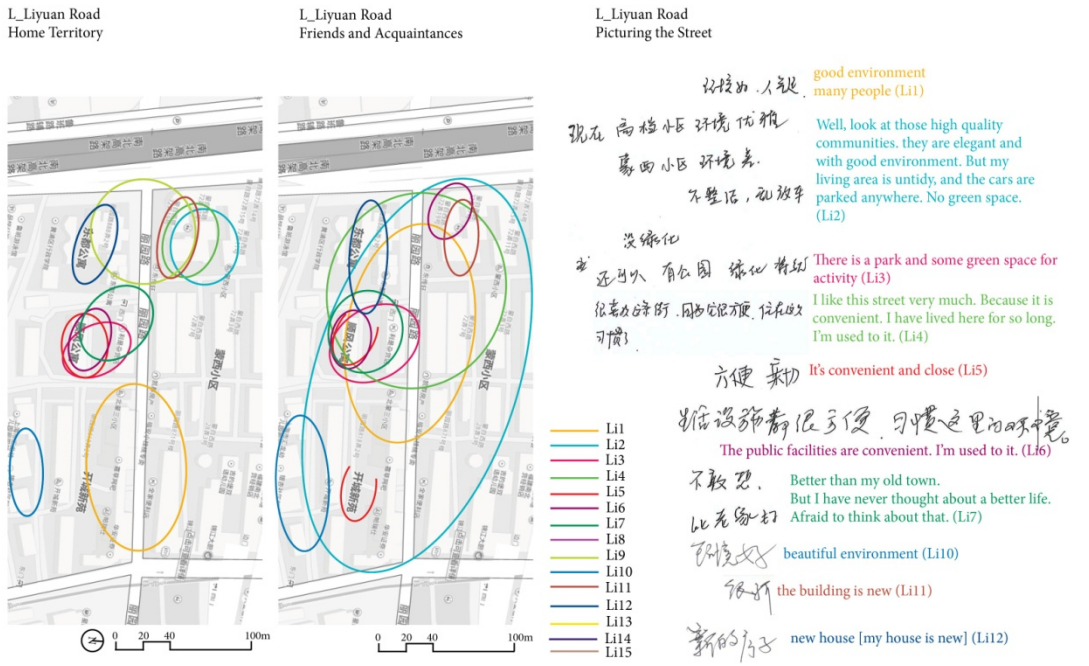


Figure 18: Drawing questions to structured interviews on Liyuan Road (L set)

L set – Xietu Road

Indicator: Length of time living on the street

The length of living on this segment varied from 1 year to 60 years.

Indicator: Bothering issues

For a few respondents, there was nothing bothering about living on this segment, appreciating the convenience of the diverse services in proximity. For others, bothering were: the car washing and the gas station located on this segment (Xi12); other people's activities of walking dogs (Xi2); the "*too many people*" (Xi9) living in the surroundings; and the too many parked bikes (L_xietu_R3), "*especially in the evening*" (Xi11). Some respondents were bothered that "*the environment is not good*" (Xi1), and that "*The living conditions are too bad. Low-quality housing. Very small living space. The street is crowded and narrow*" (Xi8), referring to the built environment within the older compound.

Indicator: Improvements needed on the street

Several respondents considered that there wasn't anything that needed improvement on this segment, expressing that "*This street is good for living*" (L_xietu_R1), or that it is "***not so bad, (…) not very good either***" (Xi11).

Other respondents considered improvements were needed concerning the older residential buildings, some suggesting to: "*destroy and rebuild*" the old buildings (Xi1, Xi9). Other respondents mentioned the need to reduce the heavy traffic (Xi6), to "*reduce the honking noise*" (Xi12) as well as the number of parked vehicles (L_xietu_R3). One respondent mentioned the need to improve the "*cleaning management*", as it had "*no organization, no consistency*" (Xi2).

Indicator: Safety Perception

Most respondents considered that this street was 'safe' or 'very safe' concerning both the living and the traffic conditions. One respondent mentioned specifically: "*if you walk out, then lock the door and it is ok*" (L_xietu_R2). Few other respondents gave neutral ratings and even fewer respondents considered it was 'unsafe', one woman mentioning the reason of having "*no gates*" at the older compound (Xi1).

Indicator: Traffic issues

For most of the respondents, there were no traffic or transport issues, with "*no traffic jam"*, and with "*convenient transport*" (L_xietu_R3). Contrasting

answers have been received from other respondents that referred to the "*heavy traffic*" (Xi6), and to the "*traffic jam"* (Xi9). Another respondent complained about the fact that people are "***parking cars everywhere [and it is] difficult to walk through***" (Xi8).

Indicator: Assessment of facilities and services

The physical facilities for living and the living conditions were considered convenient by most of the respondents, having in proximity a hospital, shops and parks (L_xietu_R2). Furthermore, although more respondents appreciated the stores in proximity, the car wash and the gas station were considered disturbing (Xi12).

Indicator: Recurrence of activities and associated reasons

There were slightly less activities mentioned by the respondents on this segment compared to the other two segments in the set. Nevertheless, several respondents mentioned chatting and strolling, sitting outside, shopping and drinking tea. More specific answers indicated walking to either coffee shops or down to the river (L_xietu_R2), and buying "*fruits and vegetables for cooking*" (L_xietu_R1). Besides convenience, other reasons for the activities mentioned were simply to "*relax*" (Xi9) but also that "*I can buy various things here"* (Xi6).

Indicators: Home territory (feeling at home); Friends and acquaintances

Some of the home territory drawings are indicating the compounds names (Xi3, Xi10), while others are enclosing the immediate surroundings of the respondents' buildings. However, interesting is that respondent (L_xietu_R2) perceived the road as a whole and not as a barrier, despite the fences and the high volumes of traffic, and furthermore, respondent (L_xietu_R3) also indicated a larger home territory.

Likewise, the responses to prompts indicated that some respondents considered as home territory only their own apartment (Xi9), while several other respondents considered as home territories their buildings and out into the street or the sidewalk.

The graphical responses to the location of friends and acquaintances also reflected what the verbal answers informed: that several respondents had none or very few friends and acquaintances, someone specifying: "*I have many friends. Those that live nearby are not many. There are 2 -3 people that I am familiar with here* " (L_xietu_R3). Other respondents mentioned 5 to 30 friends and

acquaintances, which were spread on slightly larger territories (see for instance L_xietu_R2), on the same side of the street or on both sides.

Indicator: Meetup places

The preferred meeting places mentioned were: at home, on the street itself, in a restaurant. Other respondents mentioned also meeting friends in a coffee shop, on the lane, in a park, in a library. The determinants for choosing the meeting places were, besides the convenience, the "*easy access to the place*" (Xi7), and having somewhere to "*sit down and chat, [with] quiet atmosphere*" (Xi4). One respondent mentioned that she "*can't invite anyone in this condition*" (Xi1), pointing out to the environment surrounding the older residential buildings.

Indicator: Memory of the place (picturing the street)

Several respondents pictured their street in a positive light referring to the overall convenience of living on this segment and to safety, as it can be seen in Figure and Figure. Perceptions including both positive and negative aspects had two respondents (Xi3, Xi11), while other respondents mentioned the negative aspects of the old buildings, the small living spaces, and the street segment being too long to walk and being crowded with cars (Xi8, Xi9).

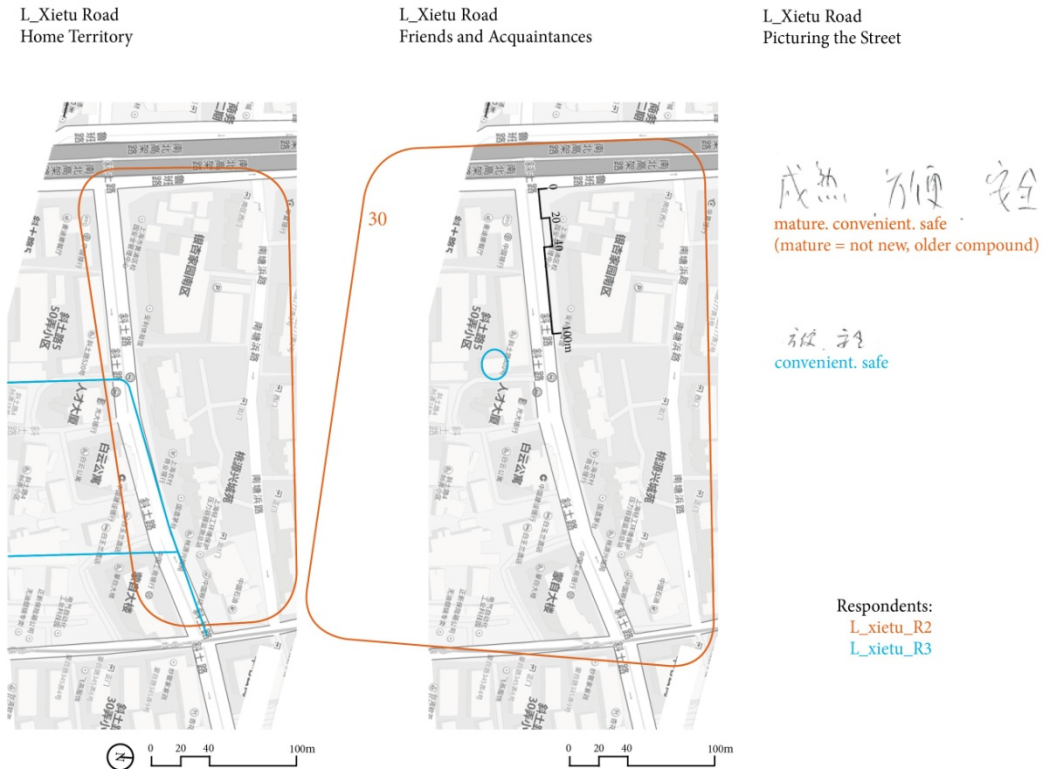


Figure 19: Drawing questions to semi-structured interviews on Xietu Road (L set)

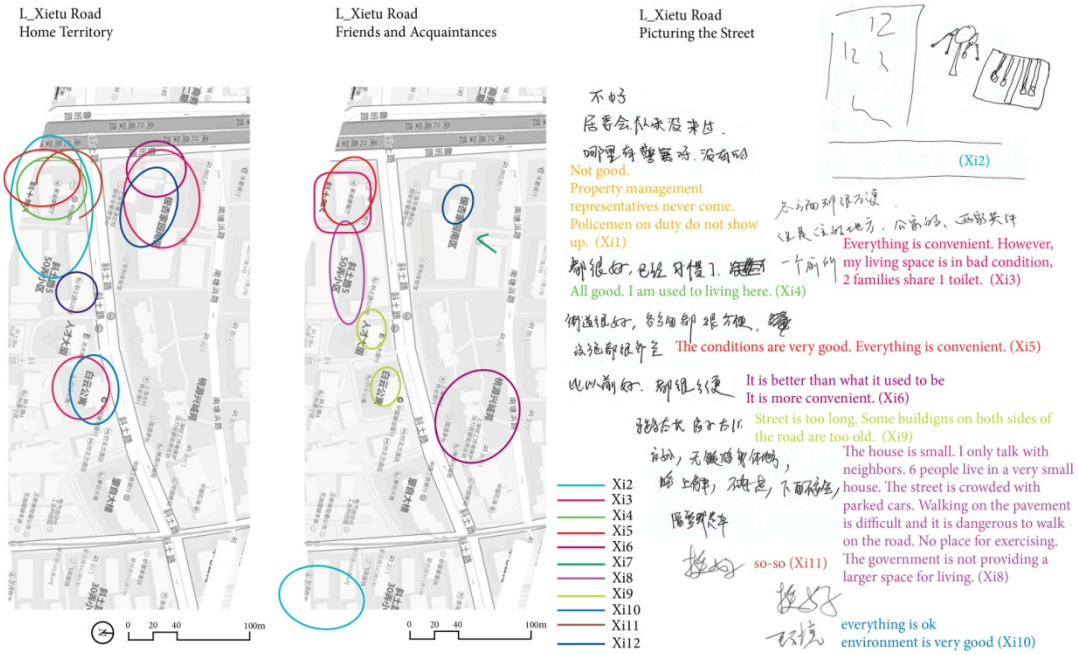


Figure 20: Drawing questions to structured interviews on Xietu Road (L set)

XL1 set – Qixia Road

Length of time living on the street

The length of living on this street ranged from 1 year to more than 60 years.

Bothering issues

For more than half of the respondents, there was nothing bothering them about living on this segment, and many respondents liked living on this street, especially for reasons of shopping and eating (XL1_qixia_R2, XL1_qixia_R5). For one respondent, "*This street is better than my hometown. These houses are all very good*" (XL1_qixia_R4).

However, contrasting opinions resulted with regards to the infrastructural changes and the restricted circulation over Dongfang Road: one respondent mentioned that "*I don't have problems now, but the traffic was not good in the past*" (Qi10); in contrast, another respondent mentioned his dissatisfaction that the business and social activities were lowered compared to before: "***I don't like this street now compared to how it used to be … because now the street is cut from the main road [and] the problem is that there are fewer people than before***" (XL1_qixia_R3).

Furthermore, the most often mentioned problem was related to the too many parked vehicles on the street, occupying the surrounding environment. Besides, the street being "*too narrow*" was seen as a problem by some respondents (XL1_qixia_R2, XL1_qixia_R5). The inefficient street management (Qi1) and the noise from the construction works (Qi5) were also mentioned.

Indicator: Improvements needed on the street

For some respondents, there was nothing needed to be improved about the street, while one respondent answered: "***I do not think the street usually relates to my life***" (Qi5).

Nevertheless, some respondents mentioned their hopes for fewer vehicles to occupy the street (Qi13, Qi14, XL1_qixia_R2, XL1_qixia_R6). One respondent suggested to "*widen the street*" (Qi3), while another gave a more elaborated suggestion to ***"Provide another space for parking. Move the handcarts and bikes. Expand the road, the width of the pedestrian way"*** **(Qi10).** Other respondents hoped for "*more convenient facilities on the street*" (Qi2), and a cleaner environment (Qi2, Qi9, XL1_qixia_R2). One other respondent mentioned that he hoped for "*the Government to have better [street] managers*" (Qi4), while for another interviewee the obvious solution was to "*knock down everything*" (Qi1).

However, one respondent preferred the street like it used to be, mentioning: "*Rushan Road in the past time was with fewer people than Qixia Road. But, because of the tunnel, there are fewer people here, many moved on Rushan Road to have their activities*" (XL1_qixia_R3).

Indicator: Safety Perception

To the structured interviews, besides a few neutral ratings, and two negative ratings, the majority of the respondents rated both the living and the traffic conditions as 'safe' or 'very safe'. To the semi-structured interviews, all the respondents considered that living on this street was safe, someone adding that it was safe "*because of the surveillance cameras*" (XL1_qixia_R1). In the meantime, one respondent mentioned of a recent traffic accident, in which one person got injured by a car nearby the restricted circulation to Dongfang Road (XL1_qixia_R5).

Indicator: Traffic issues

For most of the respondents, there were no traffic issues on this segment, while the transport was considered convenient, having the subway and the bus stations nearby (XL1_qixia_R2, XL1_qixia_R4). Other respondents re-emphasized

their concern of having too many vehicles occupying the street (Qi2, Qi3, Qi13, Qi14, Qi15), while few others considered that "*before there was some traffic jam on the street, but things got better in the recent years*" (Qi8). For another respondent, the issue was that the "*district is too closed*" (Qi4) referring to the restricted circulation across Dongfang Road. Under the nostalgia of the past of this street, an older respondent answered: "*Transport is also not convenient, not convenient compared to before*." (XL1_qixia_R3).

Indicator: Assessment of facilities and services

The facilities and the living conditions were considered convenient by most of the respondents. Nevertheless, many respondents referred to the available shops on the segment with contrasting views: someone considered it was convenient to have so many shops(Qi10); another respondent considered that the "*shops are not as many as before*" (Qi13), while another respondent didn't "*like the shops along [this] street*" (Qi4). Furthermore, one respondent compared this street to the parallel Rushan Road saying: "*The facilities are ok, there are more on Rushan Road, on this road there are less*" (XL1_qixia_R1). It also resulted the lack of a designated space for socializing for the elderly. At last, only one respondent rated the facilities as 'inconvenient', for the reason of having no larger supermarket in proximity (Qi12).

Indicator: Recurrence of activities and associated reasons

The activities mentioned by the respondents included eating, shopping, chatting with other family members and neighbours. Some respondents also mentioned watching the children play, reading the newspaper and strolling almost daily, along the street or to the nearby park and to the riverfront. Fewer respondents mentioned playing board games or dancing. Another interviewee mentioned just "*stay*[-ing] *here for (…) work, washing clothes, foot massage*" (XL1_qixia_R4). Besides convenience, another reason for pursuing these activities on the segment was that "*friends live around*" (Qi6, Qi8).

Indicators: Home territory (feeling at home); Friends and acquaintances

On Qixia Road, several respondents considered only their apartments as home territories. Some other respondents seen the whole block as home territory, however their responses to prompts were not consistent with the drawings in which they mainly indicated the exact places where they lived (Qi4, Qi6, Qi8, Qi9). Other respondents (see Figure, Figure) considered their home territories were along the street (Qi7, XL1_qixia_R4), or even expanding across the street (XL1_qixia_R6)

Several graphical representations of the places with friends and acquaintances were wide and inclusive, correlated to the high number of acquaintances mentioned, such as: "*everybody is an acquaintance…about 100 people*" (XL1_qixia_R4); "*so many friends and acquaintances I have* [here]*…300-400 people*" (XL1_qixia_R6); "*all the residents living here*" (Qi10). Only one respondent mentioned having no friends and no acquaintances on Qixia Road (Qi15), while for other respondents, the numbers of friends and acquaintances varied between 1 and 40. Social relations were formed within the same compounds, but also across the street for the most sociable respondents.

Indicator: Meetup places

Most of the respondents on Qixia Road preferred to meet their friends in the park and on the street. Other places indicated for meeting friends were: on the lane, at home, in a coffee shop, in a restaurant, as well as in the "*neighbourhood activity room*" (Qi10). Besides convenience, there was indicated a preference for places that "*can provide a place to sit and chat*" (Qi12). The advantage of meeting friends in the park was that it had "*a huge space and good environment*" (Qi8), and quietness. Another respondent commented that "*There's no teahouse on the street. So I have to meet my friends in other places.*" (Qi1), choosing the lane instead.

Indicator: Memory of the place (picturing the street)

As it can be seen in Figure and Figure, some respondents shared a positive overall impression, referring to the neat environment, to the friendliness of the people, to the benefit of having a small park close-by (Qi3, Qi12, Qi13), to the "*calm"* living conditions (XL1_qixia_R2). The less positive aspects referred to the lack of security with many old people living alone (Qi10) but also to the fact that "*Law and order [are] not all right. Sometimes [there are] cheaters, thieves, prostitutes*" (Qi4).

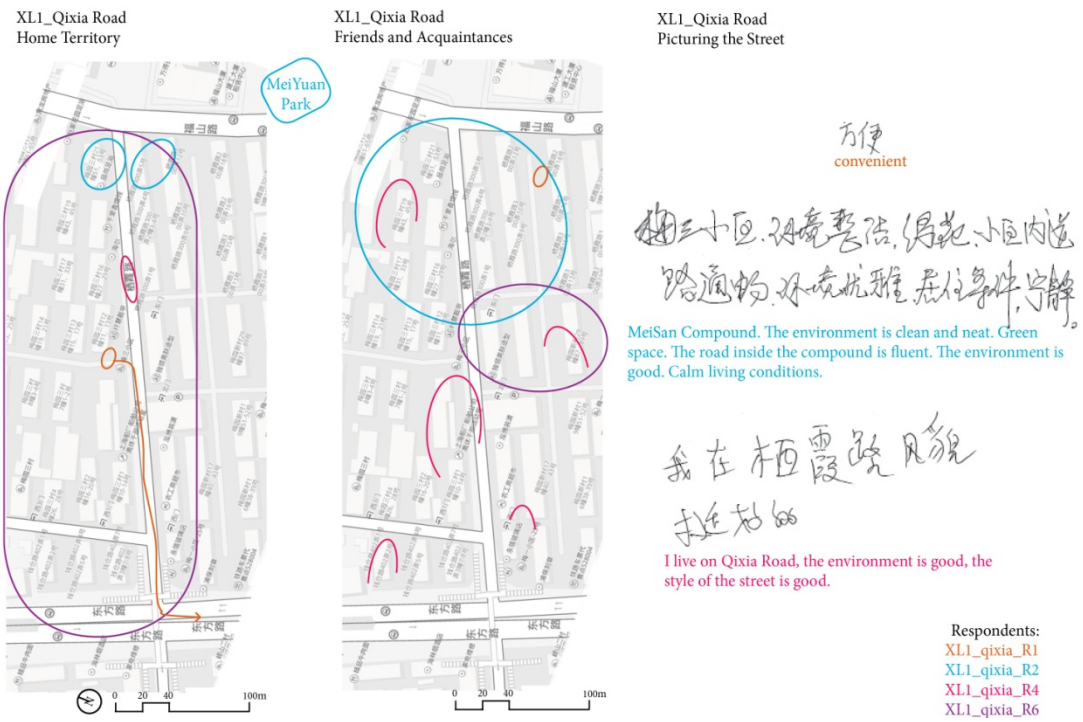


Figure 21: Drawing questions to semi-structured interviews on Qixia Road (XL1 set)

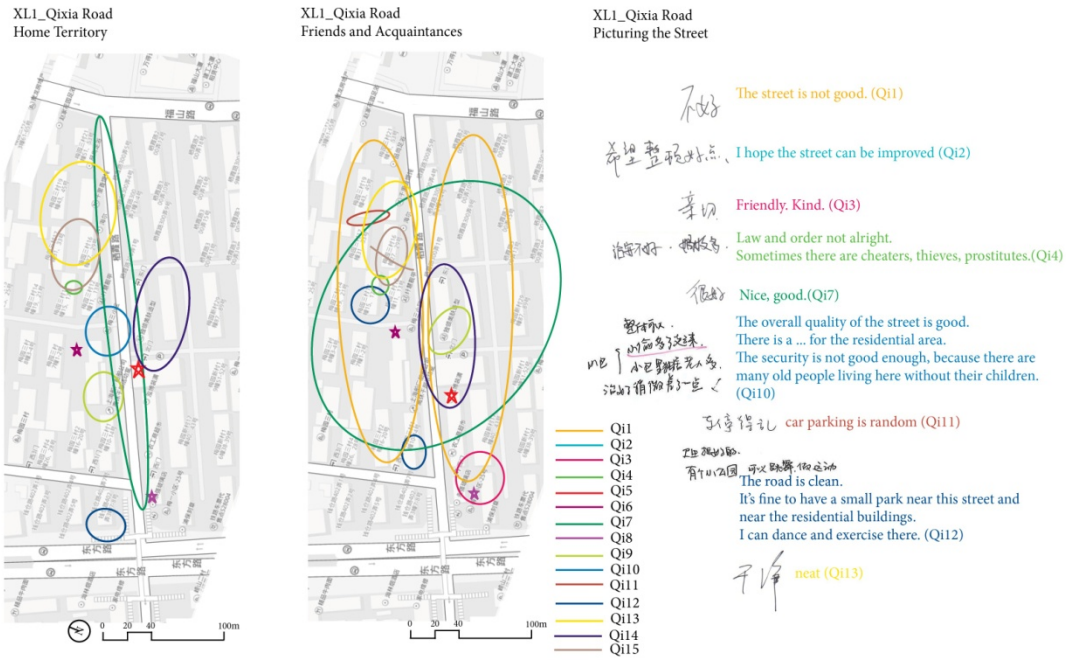


Figure 22: Drawing questions to structured interviews on Qixia Road (XL1 set)

XL1 set – Rushan Road

Indicator: Length of time living on the street

The respondents lived on Rushan Road between one month and 60 years.

Indicator: Bothering issues

For some of the respondents, there was nothing bothering them about living on this street. They liked living on this street, expressing a strong pride towards the location close to Lujiazui area: "*the best place in Pudong*" (XL1_rushan_R6) and even "*the best area in Shanghai*" (XL1_rushan_R5). Furthermore, a non-resident working for the real estate company mentioned that Rushan Road was the ideal street in his opinion (XL1_rushan_n.R1).

For other respondents, problematic issues were the pedestrian way that was "*a little narrow*" (Ru2), and the "*many public bikes (…) especially on the sidewalk*" (Ru13), overall resulting in "*too many vehicles in a small space*" (Ru12). Other problematic issues referred to traffic, to having "*too many cars*" and "*busy traffic"* (XL1_rushan_R2, XL1_rushan_R6), but also to the fact that it was "*difficult to park cars*" (Ru6). Other mentioned issues referred to the noise as being "*too loud for living*" (XL1_rushan_R2, XL1_rushan_R4), to the fact that "*the surrounding environment is unpleasant and dirty*" (Ru3), as well as to the fact that the available open space between the buildings was too small. Infrastructural issues of the blocked drainage "*at heavy rains*" (Ru6), "*due to the construction works*" (Ru 8), and of the fact that "*some of the roofs are leaking*" (Ru8) have also been mentioned. A shop assistant living and working on this segment complained that not many people of the young generations live on this street and so "*it is hard to carry on the business*" (Ru1).

Indicator: Improvements needed on the street

In the opinion of some respondents, improvements were not needed as "*everything is ok*" (Ru14), "*the place is nice*" (Ru6) and it "*doesn't have to change much*" (Ru5). One respondent did not see the point of mentioning improvements, considering that he had "***no power to change** [things]"* (Ru11).

Several other respondents hoped to have fewer vehicles on this street. The opinions on keeping one or allowing two directions for cars were, however, divided. Someone else suggested that if on the street "*people and vehicles would be kept separately, it would be better*" (XL1_Rushan_R5). The hope for releasing

congestion was understood from another response: "*This street would be better wider and with less cars*" (XL1_rushan_R3).

The need to solve the issue of the car parking (Ru10) was also mentioned, as well as the need to improve the drainage (Ru8) and to repaint the façades (Ru1). Other respondents hoped for a cleaner environment (Ru2), more green space (Ru4), more shops (Ru7), a shopping mall to raise "*the standard of facilities*" while "*remove[-ing] the bad [substandard] small shops*" (Ru1).

Another respondent added: "***This street is too crowded… It would be better with fewer cars.***" (XL1_rushan_R2).

Indicator: Safety Perception

The safety perception was divided on Rushan Road, although the majority of the respondents considered the street was safe concerning both public safety and traffic safety. The positive comments included the fact that: there is a "*one way road*", "*there is a police office here*" (Ru1), there are "*surveillance cameras*" (Ru6), "*it is safe, nobody is stealing other people's things*" (XL1_rushan_R6). On the contrary, someone mentioned that there are "*too many outsiders [migrant workers]…stealing happens*" (Ru8).

Another interviewee mentioned how the street was "*not safe enough to let the children go to school on their own*" (Ru8), while someone else mentioned that "*an accident happened in the morning*" (Ru11).

Indicator: Traffic issues

Few respondents considered there were no traffic issues on this street segment, and that transport was very convenient, with metro station that was not located too far and with many other transport options that made it "*very convenient to go from Pudong to Puxi*" (XL1_rushan_R5).

Other respondents described the traffic conditions with attributes such as "*congestion*" (Ru3, Ru13), "*crowded*" (Ru10), with many vehicles (Ru6, Ru11, Ru13), including "*small vehicles and e-bikes*" (Ru3), with "*too many delivery guys*" (Ru1, Ru11), with traffic jams at certain hours, with parking problems (XL1_rushan_R3).

Indicator: Assessment of facilities and services

Most of the respondents considered that the facilities on this segment were convenient. However, one respondent mentioned that "*it's an old street… everything is old*" (Ru10). Furthermore, while someone considered there were "*too few*

restaurants and the food is not delicious" (Ru1), other respondents considered it was "*very convenient with so many shops*" (Ru13), with a supermarket and the park in close distance (XL1_rushan_R5).

In the meantime, some residents noticed the difference between the facilities in their older compounds compared to the facilities in the newer compounds built in Pudong district: "*Our compound is old. The old houses here are with old surroundings, not like the new buildings with new environment."* (XL1_rushan_R6). The issues of the blocked drainage system and the leaking roofs have also been mentioned (Ru3).

Indicator: Recurrence of activities and associated reasons

The activities on the street mentioned by the residents were diverse. The respondents mentioned: chatting with neighbours, shopping, eating, drinking tea, strolling, walking to the park at the end of the segment, waiting for the bus or for taxi. Furthermore, singing and dancing near the park, walking pets and playing board games have also been mentioned as weekly activities.

Besides the convenience and the close distance to home, other reasons for conducting activities on this street included having commercial facilities on the street (Ru4, Ru12, Ru13) and being familiar to the environment (Ru3, Ru5). Another personal reason mentioned for chatting, shopping and drinking tea was to "*relieve pressure*" (Ru7).

Indicators: Home territory (feeling at home); Friends and acquaintances

Based on prompts, half of the respondents indicated their own apartments as their home territories. Two respondents also added other places where they felt very comfortable, such as "*the area with more infrastructure*" (Ru4) and "*the park*" (Ru7). Another respondent indicated the whole block as home territory in prompts.

Furthermore, many drawing representations included the building and the immediate surroundings, but also wider areas, some of whom expanded across the street (Ru13, XL1_rushan_R6; XL1_rushan_R2).

The street was not perceived as a barrier, the social relations were also forming across the street for the most sociable respondents (Figure and Figure). Nevertheless, the areas indicated with the location of acquaintances varied in size, as did the numbers of mentioned friends and acquaintances: some respondents mentioned few or no friends on the same segment, other respondents mentioned high numbers of friends and acquaintances, up to half of the residents living on the same

side of the street (Ru3). More detailed descriptions of the social relations were received from two respondents. One of them mentioned that "*before [I had] many more [friends], but they sold their house and left*" (Ru6). Another respondent mentioned that he had a high number of friends, "*about 300 people moved here together from the north side of Jiangsu province, to help with the construction [works]. In the meantime, the elderly moved away. Now the place is filled with outsiders, [migrant workers]"* (Ru8).

Indicator: Meetup places

The places where the residents from Rushan Road preferred to meet their friends were: in the park, in a restaurant, at home, on the street itself, at KFC, KTV, in a lounge, in mah-jong rooms, in a coffee shop, on the lane, or at the library. The specified reasons when choosing the meeting places included the convenience concerning the distance, the privacy, the "*good atmosphere*" (Ru2), as well as the choice for places that "*have seats and where it is quiet*" (Ru4).

Indicator: Memory of the place (picturing the street)

The way the respondents pictured their street varied. Some respondents expressed slightly negative opinions, concerning the not enough cleanliness, the too little green area (Ru1, Ru11), the small space between buildings and the old apartments (Ru13, Ru14), the environment around buildings "*just like a car parking*" (XL1_rushan_R2), the "*bad condition*" (Ru3) of public facilities.

Comments that included both positive and negative aspects referred to a "*good, clean*" street, although "*a little narrow"* (Ru2), inhabited by "*many old people*" (Ru6). Positive opinions referred to the convenient transportation and commercial facilities (Ru4, Ru8), and to greenery (Ru10). Another positive opinion made reference to the social environment of the street: "*The street is lively. I am familiar with the street and with the neighbours (…)"* (Ru5).

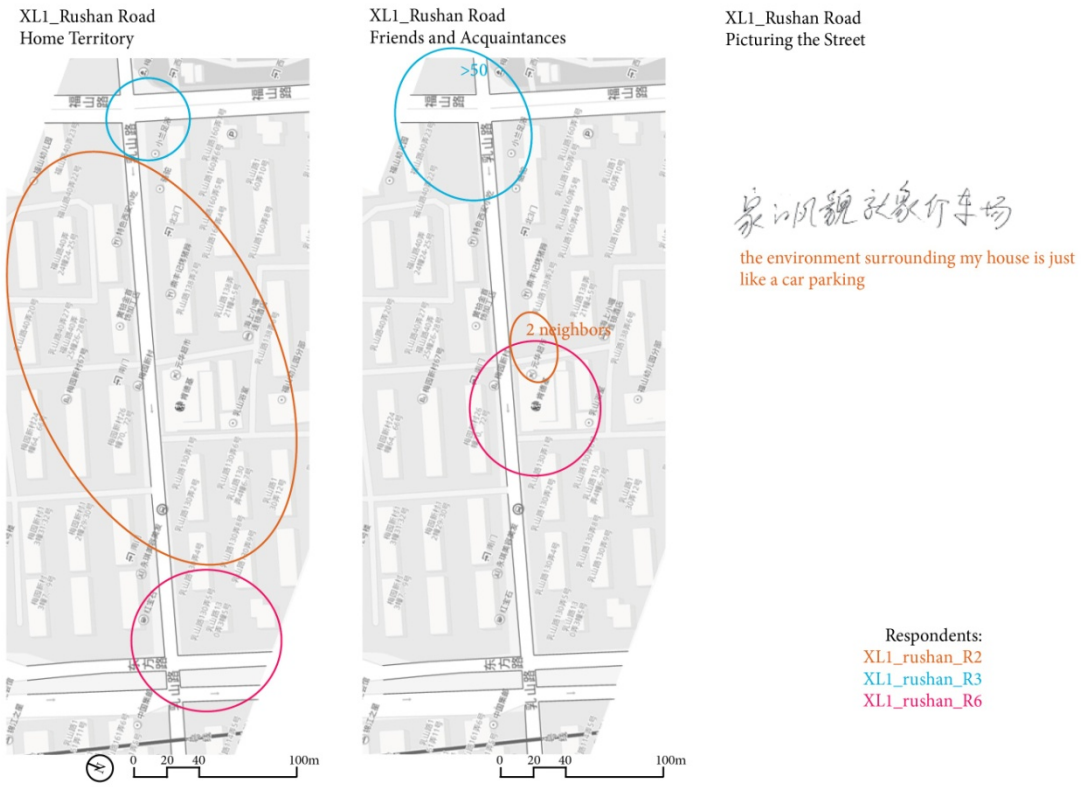


Figure 23: Drawing questions to semi-structured interviews on Rushan Road (XL1 set)

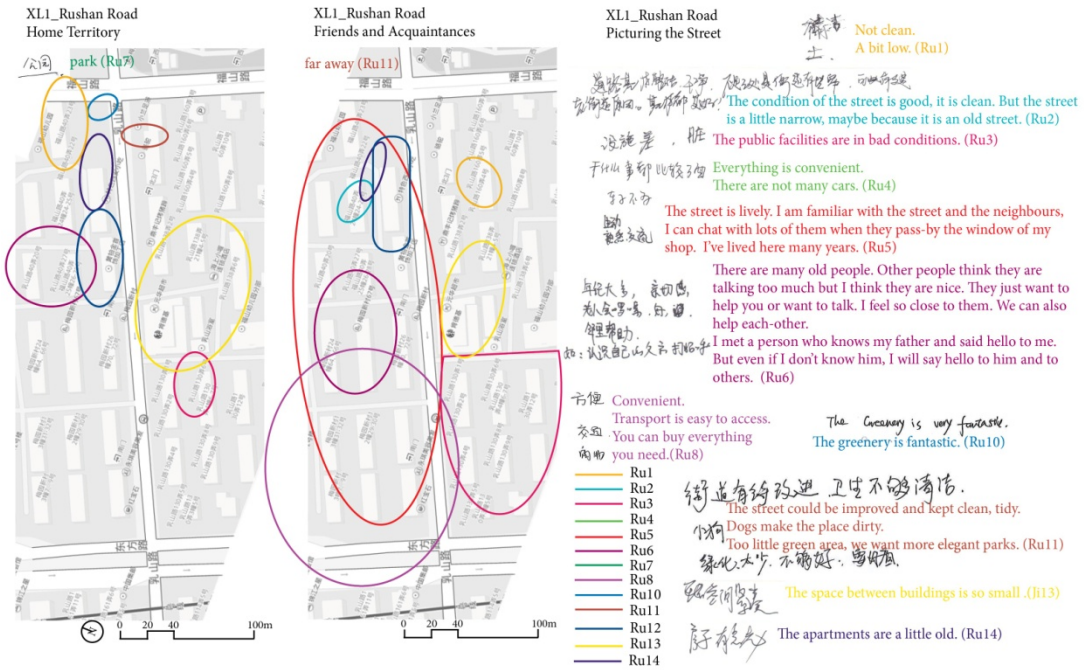


Figure 24: Drawing questions to structured interviews on Rushan Road (XL1 set)

XL1 set - Shangcheng Road

Indicator: Length of time living on the street

The length of living on this street ranged from 3 months to 80 years.

Indicator: Bothering issues

Some of the respondents liked living on this street, adding that "*it is convenient to go out* [to other areas in the city]" (XL1_shangcheng_R2), that "*everything is very good*" (XL1_shangcheng_R1), or that there was "*no problem on this street*" (XL1_shangcheng_R4). Nevertheless, someone else mentioned that "***all is fine, but there are no breakfast shops***" (Sc10).

Furthermore, a strong negative opinion was expressed by one respondent who served for the government: "*I don't like it here at all*" (XL1_shangcheng_P1). Other bothering issues mentioned by the respondents concerned the surrounding environment, including the air pollution (Sc1, Sc6), the improper sanitation (Sc3), the too short distance between buildings and other inconveniences in the organization of the built environment (Sc6). Other issues mentioned were related to traffic: having too many cars passing (Sc1, Sc11) with "*high speeds*" (Sc11); parking issues (Sc2, Sc6); the inconvenience of one-way traffic (Sc9, Sc13); the noise (Sc1, Sc3, Sc5).

Indicator: Improvements needed on the street

Two respondents considered that this street didn't need improvement. Other respondents considered that improvements were needed concerning infrastructure (Sc9), as well as concerning the too many parked vehicles (XL1_shangcheng_R4, Sc1, Sc6, Sc12). Similarly, another responded considered that ***"This street would be better wider"***, adding that "*Then, it would be very, very safe*" (XL1_shangcheng_R2).

Some respondents suggested to add greenery (Sc5, Sc2, Sc11), yet another respondent complained on the "*too high trees, [which] disturb the view*" (Sc4). Further improvement suggestions concerned "*reusing and recycling*" (Sc6) waste, but also improving cleanliness (XL1_shangcheng_R4), and increasing the number of shops, as "*this street has few shops compared to* [the parallel street] *Rushan Road*" (XL1_shangcheng_R1).

Indicator: Safety Perception

Most of the respondents perceived both the living and the traffic conditions as safe or very safe on Shangcheng Road, and only 3 respondents gave neutral ratings.

Indicator: Traffic issues

For some respondents there were no traffic issues, while transport was considered convenient. Other respondents complained about too much traffic (Sc4, Sc12), about traffic jams in the morning "*when going to work*" (XL1_shangcheng_R4) or generated because of the nearby kindergarten (XL1_shangcheng_R1), about the too much parking space (Sc11), about the "*public bikes - too many on the road*" (Sc13). The high speeds of cars, and the one-way traffic were also mentioned as bothering.

Indicator: Assessment of facilities and services

Most of the respondents considered that the facilities were convenient, or "*just fine*" (Sc13). Some positive comments included: "*Park we have, hospital we have…it is very convenient…This street is good. There is Rushan Road nearby*…" (XL1_shangcheng_R2), indicating the benefit taken from the commercial facilities in the surrounding areas. The same respondent added that "*The green space [in the compound] is good for what we need*" (XL1_shangcheng_R2). Another respondent considered that facilities were "*more convenient than before*" (Sc11). Nevertheless, other respondents referred to the limited numbers of shops that were "*fewer than before*" (Sc12), overall resulting in facilities and services that were: "***not good enough, there are very few shops on this street, there is no supermarket***." (XL1_shangcheng_R4).

Indicator: Recurrence of activities and associated reasons

The activities mentioned by the respondents included mainly walking around, waiting for the bus, but also buying vegetables or fruits in proximity. Some respondents also mentioned chatting, sitting outside, reading the newspaper, watching the children play, exercising, dancing, playing board games, but not on the street, mostly within the compounds or in parks. Seen as "*daily activities*" (Sc1), the main reason for having some activities in the surroundings of the street were "*living here*" (Sc3, Sc13).

Indicators: Home territory (feeling at home); Friends and acquaintances

From the answers based on prompts, some respondents considered their home territory was the whole block (Sc1, Sc3, Sc8, Sc10), although not corresponding to their drawings. For two other respondents, no place felt like home (Sc5, Sc6), while for other respondents, the home territory coincided with the surroundings of the building.

Correlating the home territory diagrams with the indicated locations of friends and acquaintances, it emerged that in the places where people felt at home they also formed friendships, except for one respondent that indicated having his friends slightly beyond the segment (Sc12). In verbal responses, several respondents mentioned none or limited numbers of friends and acquaintance. Only one respondent living on the segment for 70 years had many acquaintances on both sides of the street, while few other respondents had between 10 and 40 friends and acquaintances, located mainly on the same side of the street with them, which was also reflected in their drawings.

Indicator: Meetup places

The meeting preferences of the respondents on Shangcheng Road were, in the order of preference: in a park, on the inner street within the compound or on the lane, at home, in a restaurant, in a square. Besides convenience, other reasons for choosing the meeting places were for privacy (Sc13), or for finding "*a good place for speaking in quiet*" (Sc1).

Indicator: Memory of the place (picturing the street)

Not many respondents expressed their opinions on how they pictured their street. For one respondent, "*the street is great"* (Sc8), while two other respondents indicated their living conditions in "*old house[s]*" (Sc11), that are "*small*" (Sc5). Someone else made a simple drawing of the street, indicating the location of bus stops and of the fruit shop on the segment (XL1_shangcheng_R4).

Figure 25: Drawing questions to semi-structured interviews on Shangcheng Road (XL1 set)

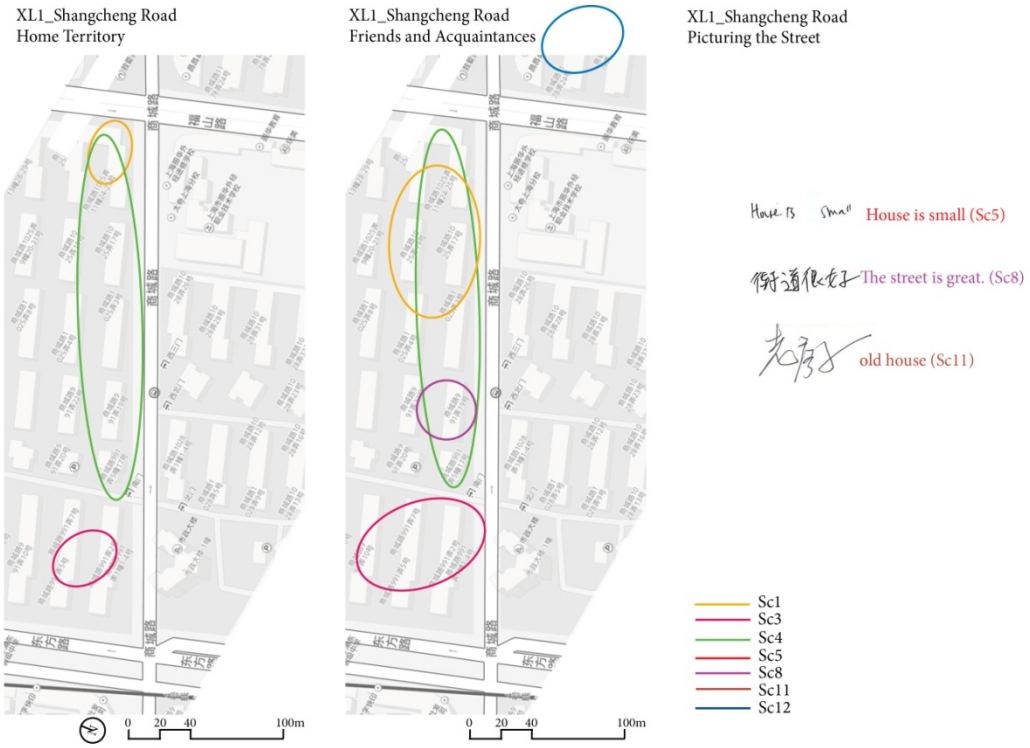


Figure 26: Drawing questions to structured interviews on Shangcheng Road (XL1 set)

XL2 set - Pucheng Road

Indicator: Length of time living on the street

The length of living on Pucheng Road ranged from 1 year to more than 50 years. For those that have lived on the segment for 50-60 years, "*since childhood*" (Pc4), they have witnessed the rebuilding process of the area, after which they "*came back to live here*" (XL2_pucheng_R4).

Indicator: Bothering issues

Although several respondents liked living on this segment and mentioned that there were no problems, as this was not "*the main road*" (XL2_pucheng_R1, XL2_pucheng_R2), other respondents had different things to complain about.

Some of the dissatisfactions concerned the low accessibility to transport, to services and facilities: "*Subway is quite far*" (Pc2); "***Not so convenient to buy stuff.*** *No big supermarket nearby*" (Pc3); "*Lack of income, so we live here.* ***But the facilities are not enough for shopping, eating. The number of buses is limited***" (Pc5).

Others complained on the parking issue, for either having too many cars parked on the street, or for not being convenient to park their own car. Two respondents complained on the high number of migrants, someone specifying that "*(…)* ***there are a lot of immigrants here; their personality is not good, not polite***" (XL2_pucheng_R3). Another respondent indicated the insufficient public lighting. Someone else mentioned noise issues: "*There is nothing that bothers me…but it's only a little noisy*" (Pc8).

Indicator: Improvements needed on the street

Several respondents mentioned no improvements needed for this segment, while someone living in the high-class compound mentioned how this was the ideal street for her. Nevertheless, one respondent considered that: "[*it is] not my business to consider such things*" (Pc4). Few respondents suggested to provide: "*more bus choices, a hospital, a supermarket*" (Pc5); "*more buses (…)[and] more shops*" (XL2_pucheng_R4); "*benches and pass-way for children to cross the street*" (Pc6). Three other respondents suggested improvements needed concerning parking. Someone else added that "*if it wouldn't be so noisy, it would maybe be better*" (XL2_pucheng_R4).

Indicator: Safety Perception

The majority of the respondents considered the street was safe. Positive comments referred to the presence of "*the gateman*" (Pc8), to the fact that the social environment was "*good, [with] polite people*" (Pc7).

Nevertheless, among the few neutral and negative ratings, two interviewees mentioned crossing issues, someone indicating that it was "*dangerous for children to cross the street*" (Pc6). Another respondent considered improvements were needed concerning public safety, as: "*after 8pm there is not enough lighting* (…) *a strange teenager comes towards Pudian Road (…) it would be good to have a security car watching at all time*" (Pc10).

Indicator: Traffic issues

About half of the respondents considered that there were no traffic issues on this segment, specifying that "*cars [are] not so many*" (Pc9) or that "*there are no traffic problems, traffic is smooth because this is not the main road*" (XL2_pucheng_R1).

For other respondents, the issues concerned parking, but also the too few buses and the too loud noise, someone detailing: "*Around night time, some people would drive their sports car - quite loudly and speedy… but I anyway don't walk at that time*." (Pc10).

Indicator: Assessment of facilities and services

The opinions concerning the facilities and services varied. Less positive comments indicated that the facilities were "*[of] little low class*" (Pc8), and "*far*" (Pc9), besides the less convenient transport on the segment (Pc2, Pc5). At the same time, another respondent mentioned: "***The facilities are not so good as in the past, the shops have been moved to other places***" (XL2_pucheng_R4).

The rest of the respondents considered that there were enough services and facilities, "*if we also consider the convenient store at the corner*" (Pc10), as well as the "*market, shops, hospital*" (XL2_pucheng_R3) nearby, on the intersecting Pudian Road. A more elaborated answer was that "*On this section, of course [the facilities are] not enough, but in this area, it is ok. The accessible green space is not enough, the nearest one is along the river*" (Pc10).

Indicator: Recurrence of activities and associated reasons

The most common activities mentioned by the respondents were reading the newspaper, watching the children play, walking around, waiting for the bus, buying

vegetables and other things in proximity. Other activities such as cycling, eating, sunning clothes, playing Chinese chess, dancing in the corner square with other friends have also been one-time mentioned.

Besides the convenience and the close distance to home, other reasons for carrying these activities in the proximity of the street were the fact that "*We can be relaxed [here]";* or "*I have lived here for so long, I love it, I have emotion [for this place]*." (Pc6). Nevertheless, the limited amount of activities on the street can be understood from the comments of one respondent saying: "***Walking is the only thing you can do.*** *A lot of people are walking dogs. People walk dogs every day. I don't have a dog. I go through. For walking dogs is a quiet place."* (Pc10).

Indicators: Home territory (feeling at home); Friends and acquaintances

Several drawing representations indicated the names of the compounds, without an exact spatial reference. Nevertheless, concerning home territory, distinct were the drawings of several respondents: of a respondent who felt at home across both sides of the street (XL2_pucheng_R2), of a respondent who felt at home on the sidewalk of the high-end compound (Pc10), and of another respondent feeling at home in the high-end compound, but belonging to the lower classes (Pc5).

Overall, the general trend was for not having friends or acquaintances on the other side of the street, reflected through the drawing questions and through verbal answers. The discrepancy between the living environments on the two parts of the street is reflected through the comment of one respondent adding that "*This part is the community for outsiders*" (Pc4).

Even on the same side of the street, most of the respondents mentioned very few acquaintances, generally under 5 people. One respondent who returned after the reconstruction of the street mentioned about 20 acquaintances (XL2_pucheng_R4).

Only three respondents mentioned higher numbers of acquaintances within their compounds, of whom a very sociable person mentioned that: "*I am familiar with nearly all the people that live in my compound*" (XL2_pucheng_R1).

Indicator: Meetup places

The meetup places mentioned by the respondents were, in the order of preference: at home, in a park, in a restaurant, in a coffee shop, in the activity room within the community. One respondent mentioned the street as one of the preferred meetup places. Besides convenience, other determinants in choosing a meeting place

were the environment (Pc3, Pc6), preferably with "*lots of green areas*" (Pc3), and the price (Pc5).

Indicator: Memory of the place (picturing the street)

Several summarizing opinions about the street made reference to the quality of the surrounding environment (Pc3, Pc8, Pc9), but also to the types of people living on this street (Pc6). Nevertheless, dissatisfactions with the older buildings (Pc7), with the too much parking in the surroundings, as well as the hope to "*add a square and snack street*" (Pc1) and to "*increase the facility for the road*" (XL2_pucheng _R2) were also mentioned. Another respondent made a cross-section of the street, while saying: "***I would like to have a new row of trees planted***" (Pc10).

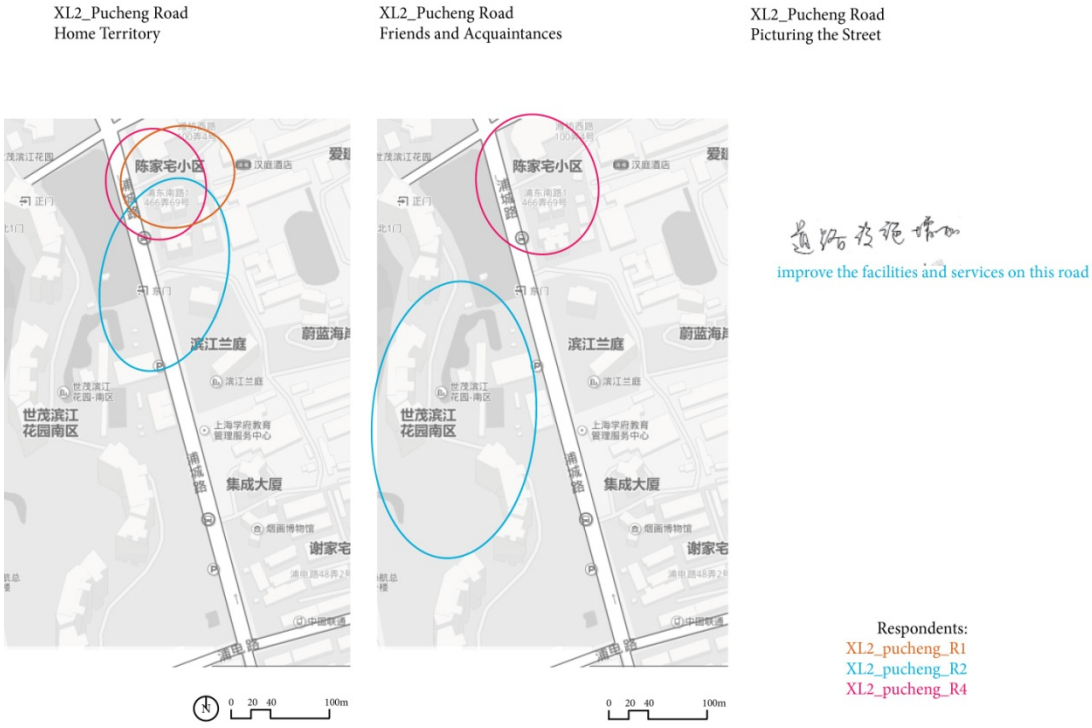


Figure 27: Drawing questions to semi-structured interviews on Pucheng Road (XL2 set)

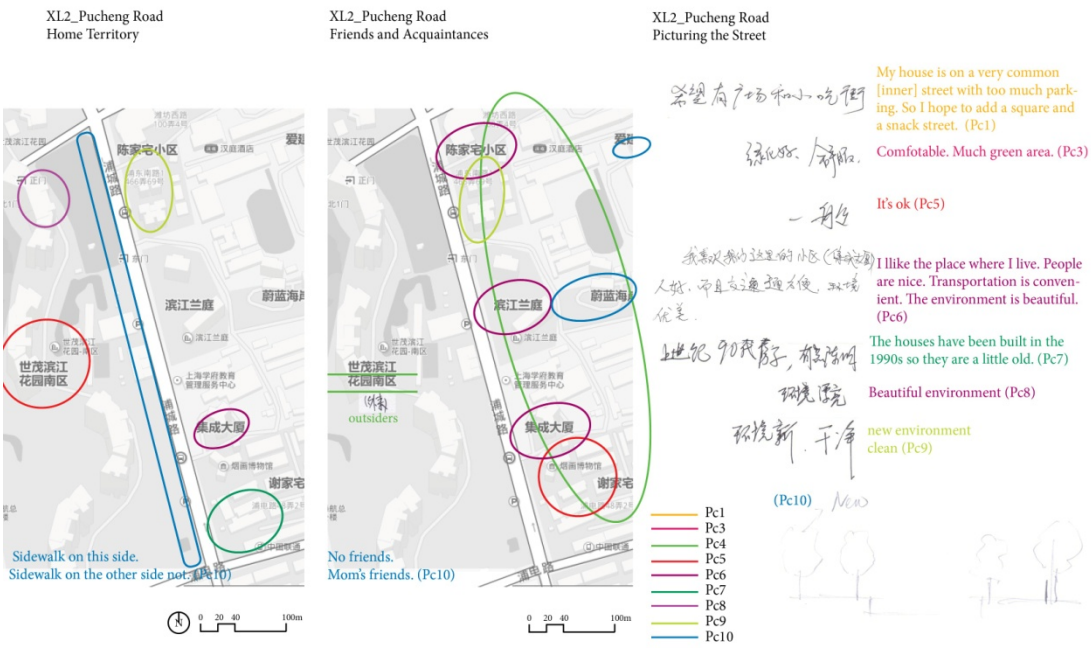


Figure 28: Drawing questions to structured interviews on Pucheng Road (XL2 set)

XL2 set - Nanquan Road

Indicator: Length of time living on the street

The respondents lived on Nanquan Road between a few months and more than 60 years.

Indicator: Bothering issues

Half of the respondents were not bothered by anything when living on this segment, referring to it as "*not bad…[it is] clean*" (Na2).

Nevertheless, many other respondents complained about the too narrow street, about having too many cars and too much traffic, or even about the cars turning-around on the street (XL2_ nanquan_R1). Illustrative was the comment of an interviewee who mentioned that, although it was not for her to judge whether there were problems with the street, she thought the street was "*a little too narrow*", with "*a lot of cars parking on this street*" (XL2_ nanquan_R3). Another respondent gave a more elaborated description of the traffic situation in a larger context: "*There are too many cars here… this way is BaBaiBan* [shopping centre], *too many cars come on this road.* ***Weifang Road*** [the intersecting road] ***is wide, this street is narrow, so it generates traffic issues here.***" (XL2_ nanquan_R2).

Two respondents also complained about the noise from traffic and the noise from "*the stores and the areas under redecoration*" (Na3). Other things bothering were the "*bad environment*" (Na4), the "*much smoke created by the restaurant*" (Na3), and "*the fuzzy balls falling from trees, which are very problematic for health, or fly into my eyes*" (Na10).

Indicator: Improvements needed on the street

Six respondents considered that improvements should be brought to the environment of the street by primarily making it cleaner, especially in what concerned the green space: "*the small gardens are a mess, some people's pets relieve themselves everywhere*" (Na 4). Other expected improvements concerned widening the too narrow segment, concerned having less cars, solving the parking problem and improving the pavement on the pedestrian way. A younger respondent thought that this street should ideally be "*like Huaihai Road*" (XL2_ nanquan_R4), a high-class shopping street in Shanghai.

Indicator: Safety Perception

Most of the respondents considered that the living and the traffic conditions were safe on this street. Nevertheless, negative perceptions concerning traffic safety were also recorded, someone mentioned of a high possibility for accidents on the narrow street segment (Na1), and someone else simply added that "*it is not very safe because of the car*" (XL2_ nanquan_R2).

Indicator: Traffic issues

For a few respondents, there were no traffic issues on the segment, while the transport was considered convenient. Other respondents indicated the issue of traffic jams on this narrow street, with comments referring to: "*the congestion of bicycles and cars*" (Na2); the fact that "*outside [on the street] there are too many cars... cars riding so fast… and they honk*" (Na10). Someone illustrated the possibility for accidents: "*Busses, cars and bicycles hit people. The street is narrow"* (Na1). Someone else referred to the parking problem (Na4).

Indicator: Assessment of facilities and services

Most of the respondents considered that the facilities and services on this street were convenient, especially because "*there are shops, there is market*" (XL2_ nanquan_R2). Nevertheless, discontentment was still mentioned, as there was no designated exercising area (XL2_ nanquan_R1), as the living space was small and the facilities were slightly old (XL2_ nanquan_R2, XL2_ nanquan_R3). One

respondent gave an explicit, comparative answer: "*The facilities and services around here are convenient. Everything that we need is here, especially when needing to buy something. But our buildings are old, the inner facilities are not satisfactory, the toilet is very small, only 2sqm. The new houses in this area are on the real estate market, there is no problem with them, they have big toilet, big kitchen*" (XL2_ nanquan_R2). On the same line, another respondent hoped for "*this area to be renovated, renewed*" (XL2_ nanquan_R3).

Indicator: Recurrence of activities and associated reasons

The most common daily activities mentioned on the segment were: chatting, sitting outside, playing board games, shopping, strolling. Some respondents also mentioned walking pets, cycling and watching the children play. Less mentioned were eating, drinking tea, and dancing. Other illustrative comments concerning the activities carried out were: "*waiting for the bus when going to work*", "*shopping at the market*" (XL2_ nanquan_R1), "*travelling and dancing in the square*", "*playing chess and mah-jong with friends*" (XL2_ nanquan_R2), "*sending the child to school*" (XL2_ nanquan_R3).

Besides convenience, another reason for conducting activities in the proximity of the street was for being "*close to the supermarket and the square*" (Na3).

Indicators: Home territory (feeling at home); Friends and acquaintances

Four respondents indicated their own apartments as home territories through their answers to prompts. Other drawing representations indicated the buildings and the immediate surroundings as home territories, as well as the names of the compounds.

The graphical representations with the locations of friends and acquaintances indicate that social relations were formed mainly within the residential compounds, but for some respondents, friendships were formed across the street as well (Na2, Na6, Na7, Na8). Similarly, the mentioned numbers of friends and acquaintances varied greatly: from none or very few, to 30 friends to "*play chess and mah-jong*" with (XL2_ nanquan_R2), to more than 100 people, while for a respondent that was born in this area "*friends and acquaintances are all here…500-600 people*"(XL2_ nanquan_P1). Another respondent specified: "*I am familiar with about half of the people living on this side of the street (…) I am familiar with fewer people on the other side of the street*" (Na10).

Indicator: Meetup places

The preferred meetup places of the respondents were, in the order of preference: on the street itself, in a park, in a coffee shop. Other mentioned places were "*at the front door*" (Na5) and at "*the restaurant in the plaza*" (Na3). Besides convenience, other reasons when choosing a meetup place were the "*good environment*" (Na3, Na9), but also having "*many people [in the park] ...we can talk*" (Na2).

Indicator: Memory of the place (picturing the street)

As visible in Figure and Figure, positive comments made reference to the convenient transport, to the quiet and "*convenient life*" (Na3) when living on this street, to the neighbours' politeness (XL2_nanquan_R3). Negative comments referred to the old buildings (Na5, Na8), to the little green space and the poor cleanliness (XL2_nanquan_R2). Someone else simply indicated the places for eating, shopping and exercising in relation to his home (XL2_nanquan_R4).

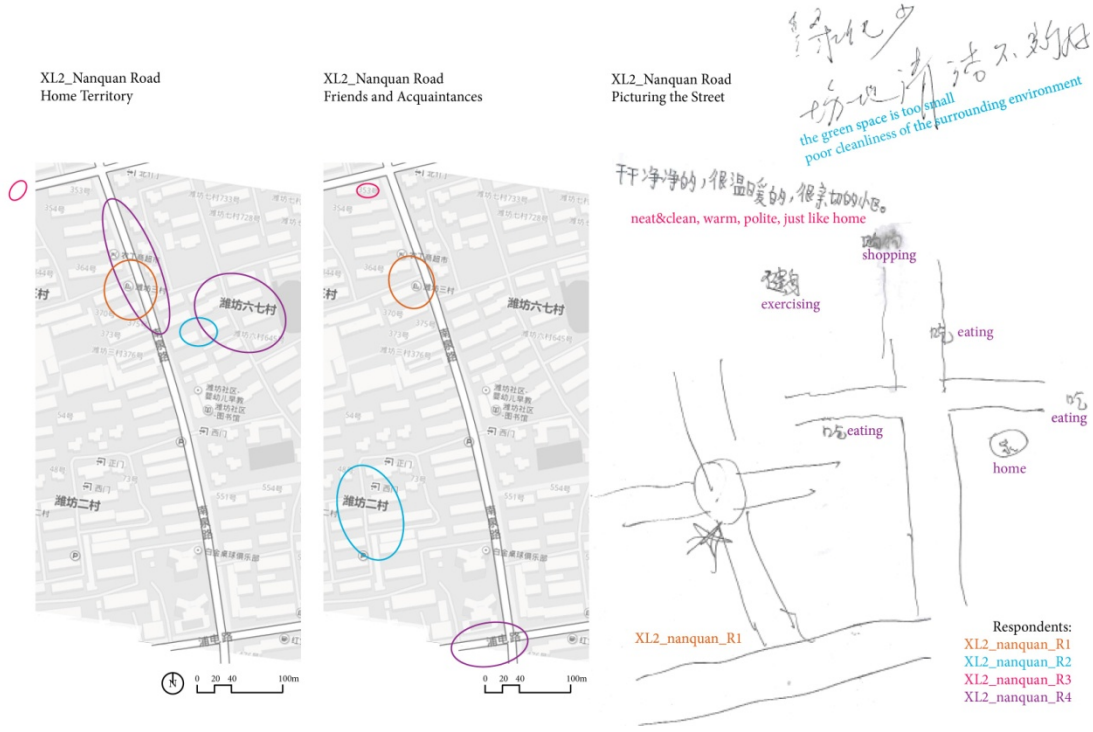


Figure 29: Drawing questions to semi-structured interviews on Nanquan Road (XL2 set)

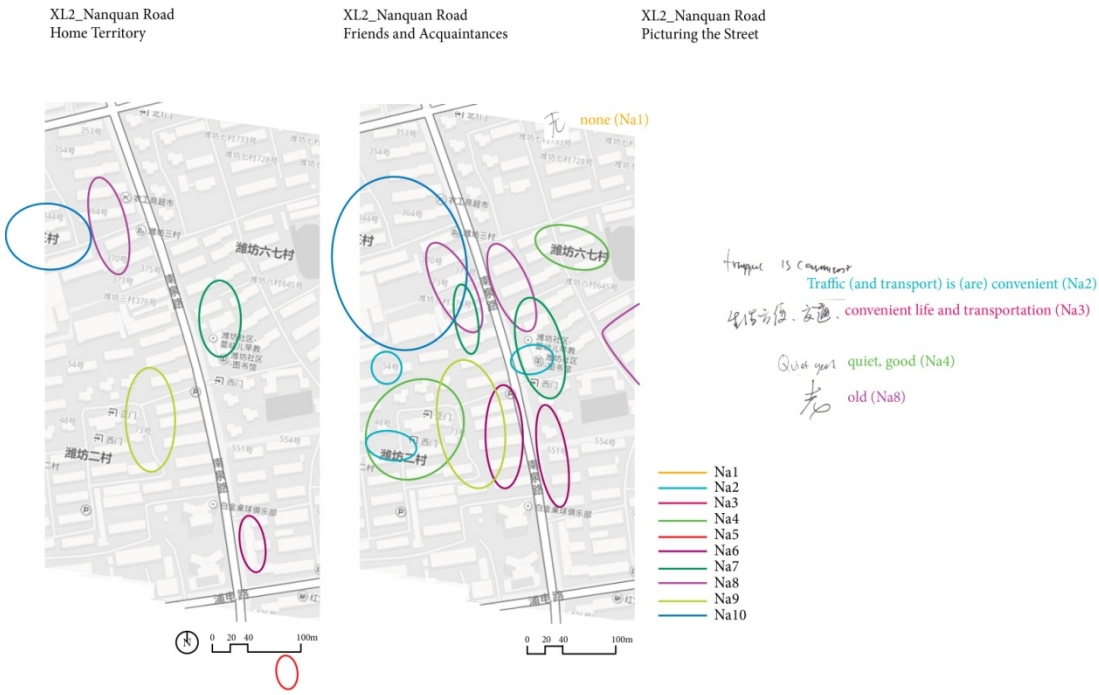


Figure 30: Drawing questions to structured interviews on Nanquan Road (XL2 set)

XL2 - Pudong South Road

Indicator: Length of time living on the street

The respondents lived on Pudong South Road between 12 years and 60 years.

Indicator: Bothering issues

For about half of the respondents, there was nothing bothering them about living on their street. Some respondents complained about the too many parked vehicles (Pu1, Pu10), and about the noise from traffic (Pu11), about the ***"too long distance to walk from this intersection to that intersection"*** (XL2_pudong south_R2), but also about the fact that "***The green space is so little. Too tall buildings here and too noisy***" (XL2_pudong south_R2). Another respondent complained that "*the pets of others make the public space dirty*" (Pu4). Other issues concerned "*the relation between neighbours [that] is not good*" (Pu4).

Indicator: Improvements needed on the street

Several interviewees considered that improvements were needed with regards to the too many cars and the parking space, suggesting for instance to: "***Expand the road… it should be more spacious, with more parking spots***" (Pu4); or, on the contrary, suggesting to "*cut down parking space*" (Pu9). Some respondents considered that improvements should be brought to the physical environment, by

making it cleaner, and by improving the hygiene and the sanitation. Respondents also hoped for "*more green space*" (XL2_pudong south_R2), but also for a street "*easier to cross*" (XL2_pudong south_R3). The need to reduce the noise has also been mentioned.

Indicator: Safety Perception

Most of the respondents considered both the traffic and the living conditions as safe on this segment. Nevertheless, negative comments were also recorded, including that "*it is not very safe because there are so many cars on this street*" (XL2_pudong south_R3). It was also mentioned that "*thieves are often coming and [the police] have no measures to efficiently catch them*" (Pu7); similarly, other respondents considered that "*the police are not doing their job*" (Pu4) and that there was a "*mess, [and] lack of management*" (Pu2).

Indicator: Traffic issues

Two interviewees considered this segment with no traffic or transport issues, adding that "*The transport is convenient from my house to Puxi. Here is the tunnel, I can easily reach Puxi*" (XL2_pudong south_R1).

For the other respondents, the issues concerned the traffic jams during working days, the too many cars, the too many e-bikes. Other respondents complained on the narrow inner alleys within the residential compounds (Pu5), crowded with parked vehicles belonging to people from other compounds (Pu3).

Indicator: Assessment of facilities and services

Except two respondents who gave negative ratings for facilities, the rest of the respondents considered them convenient, with comments such as: "*[it's] ok, not bad*" (Pu9), or "*[it's] ok, [there are] middle and upper class facilities*" (Pu11). Another respondent gave a more elaborated description of services and facilities: "*Here is BaBaiBan to buy clothes; Here I buy vegetables; Here I go to Puxi…All is close-by…In the house we also have toilet, we have kitchen.* ***The government of this district is very helpful to us***" (XL2_pudong south_R1). Another respondent added: "*There are places to eat [around]…all is convenient*" (XL2_pudong south_R3).

Indicator: Recurrence of activities and associated reasons

The activities mentioned by the respondents happened mainly along the inner streets within the compounds and included: chatting, sitting outside, cycling. Some respondents also mentioned playing board games, drinking tea, sunning clothes, eating, shopping, but also dancing, watching the children play, walking pets,

exercising. One-time mentioned were also playing basketball and taking photos. One respondent added that he just *"work[s] and sleep[s]"* at his place, "*because other activities make the street dirty*" (Pu3). Another respondent was drinking tea, raising fish and playing board games in other places "*because there is not enough place in my house*" (Pu1). Some respondents gave more positive reasons for conducting their activities in the proximity of the street, such as: "*being familiar to this place*" (Pu4), or "*just [to] enjoy it*" (Pu6).

Indicators: Home territory (feeling at home); Friends and acquaintances

For five interviewees, the responses to prompts were well reflected in their drawings (Pu1, Pu2, Pu6, Pu7, Pu8). For three other respondents that indicated the whole block as their home territory through prompts (Pu2, Pu3, Pu4), their drawings did not reflect the same. Notable is also how for another respondent, the home territory was all along the road (XL2_pudong south_R3).

Furthermore, from the drawing questions as well as from the verbal answers it can be understood that for most of the respondents, their home territories coincided with the areas where their friends and acquaintances were located. However, there were also few respondents who had friends across the street. In verbal answers, the mentioned numbers of friends and acquaintances varied from none, to less than 10, to about 30 or up to 100 familiar people.

Indicator: Meetup places

More than half of the respondents mentioned the inner street within their compound or the lanes as their preferred meetup places. Other mentioned places for meeting friends were at home, in a restaurant, in a square, but also in the neighbourhood rooms for playing cards or at the entrance doors of supermarkets and shops. Besides convenience, other determinants when choosing the meetup places were to have "*active amusement*" (Pu6), and to have "*sun, trees, shadow*" (Pu2).

Indicator: Memory of the place (picturing the street)

The summarized opinions about the street included some negative aspects concerning the old buildings (Pu9, Pu11), and the overall environment of the "*Dirty. Messy. Bad*" (Pu1) street, which was "*not better than Lujiazui"* (Pu2). Issues concerning the mobility of the old people were also revealed (Pu2). One positive comment referred to the satisfaction with the green space within the residential compound (XL2_pudong south_R3). Another respondent drew a schematic

interpretation of the area, locating his home in the compound, delimited by three main roads.

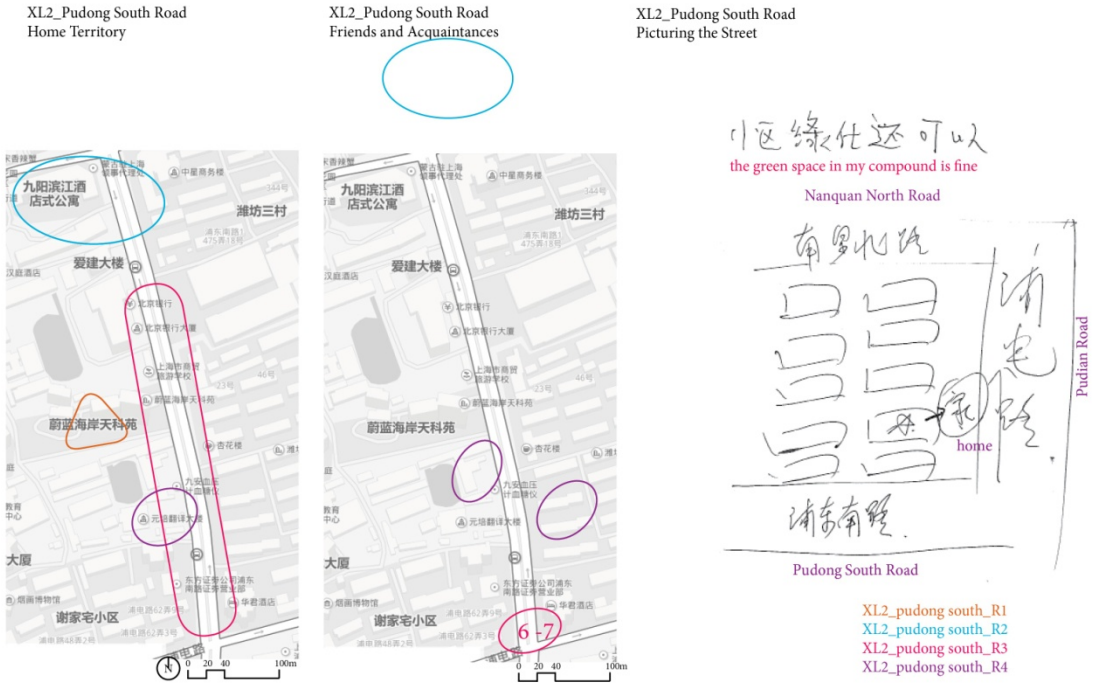


Figure 31: Drawing questions to semi-structured interviews on Pudong South Road (XL2 set)

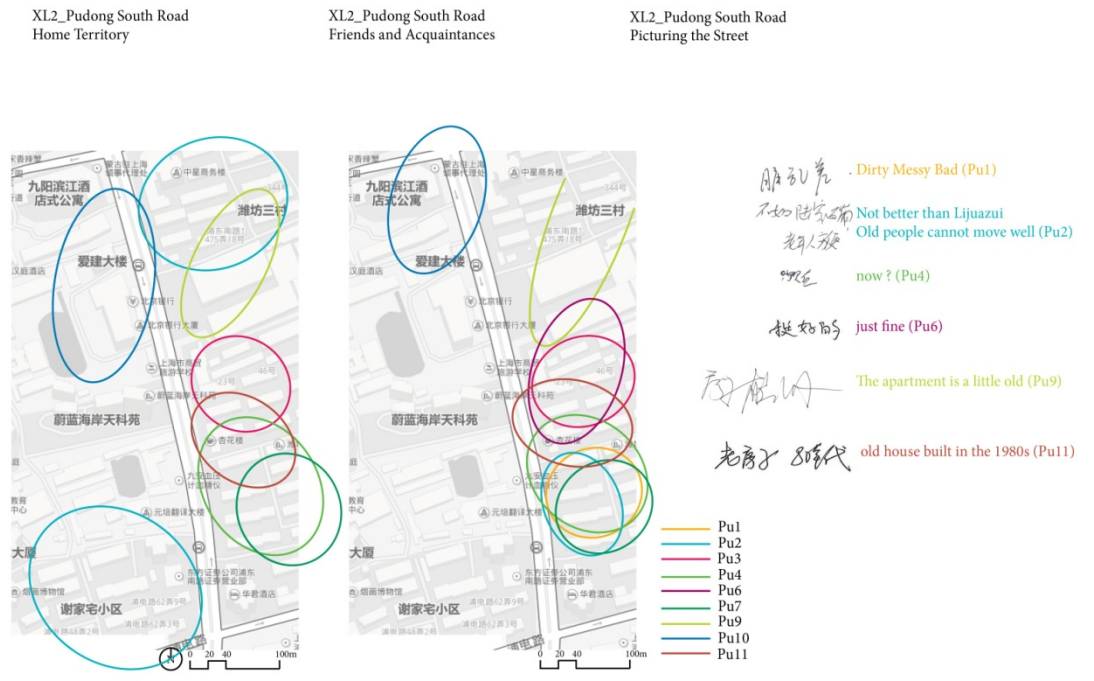


Figure 32: Drawing questions to structured interviews on Pudong South Road (XL2 set)

Appendices E – to the Findings from Systematic Observations

Appendix E1: Photomontage of serial pictures on streets

Figure 33: Frontages on Xicangqiao Road segment (180m, S set) - above: North frontage; below: South frontage

Figure 34: Frontages on Wenmiao Road segment (200m, S set) - above: North frontage; below: South frontage

Figure 35: Frontages on Penglai Road segment (300m, S set) - above: North frontage; below: South frontage

Figure 36: Frontages on Jiashan Road segment (200m, M set) - above: East frontage; below: West frontage

Figure 37: Frontages on Xiangyang Road segment (200m, M set) - above: East frontage; below: West frontage

Figure 38: Frontages on Shaanxi South Road segment (225m, M set) - above: East frontage; below: West frontage

Figure 39: Frontages on Mengzi West Road (300m, L set) - above: North frontage; below: South frontage

Figure 40: Frontages on Liyuan Road (300m, L set) - above: North frontage; below: South frontage

Figure 41: Frontages on Xietu Road (340m, L set) - above: North Frontage; below: South frontage

Figure 42: Frontages on Qixia Road segment (340m, XL1 set) - above: North frontage; below: South frontage

Figure 43: Frontages on Rushan Road (345m, XL1 set) - above: North frontage; below: South frontage

Figure 44: Frontages on Shangcheng Road segment (345m, XL1 set) - above: North frontage; below: South frontage

Figure 45: Frontages on Pucheng Road segment (520m, XL2 set) - above: East side; below: West side

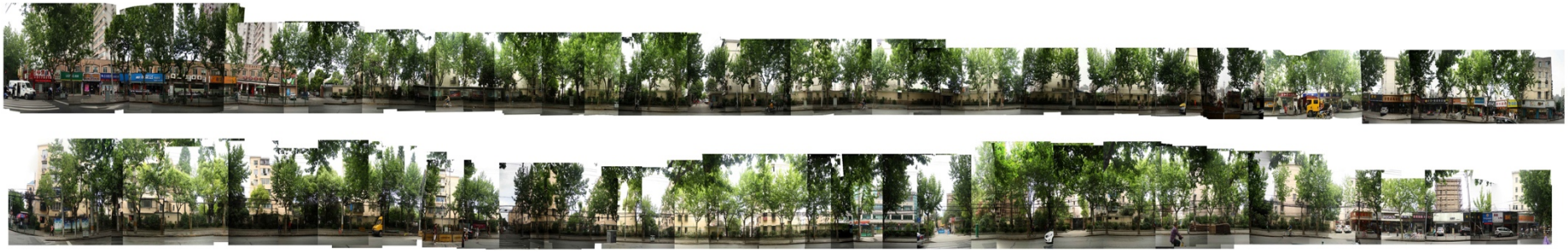


Figure 46: Frontages on Nanquan Road segment (580m, XL2 set) - above: West frontage; below: East frontage

Figure 47: Frontages on Pudong South Road segment (550m, XL2 set) - above: West frontage; below: East frontage

Appendix E2: Human activities recorded on selected streets

S set

Table 22: Human activities recorded on Xicangqiao Street during the predefined intervals of observation

Human activities on Xicangqiao Street (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-people shopping; washing and sunning clothes; peeling vegetables; throwing garbage; watering plants; -informal sewing and repairing shoes services; -shopkeepers sweeping in front of shops; -workers renovating the buildings or fixing the asphalt; -collectors checking the trash cans.	- residents sitting outside, in front of their houses; -women waiting in front of the hairstyling salon and chatting; -older women crocheting; -someone reading the real estate offers; -people walking their dogs; -someone stretching her body; -cleaners resting; -men smoking.	-people eating at tables brought out on the street; playing cards; -neighbours chatting next to the gatemen; drinking tea and chatting under improvised porches; -children playing on the street;

Table 23: Human activities recorded on Wenmiao Road during the predefined intervals of observation

Human activities on Wenmiao Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-people waiting in line at the public toilet; -tourists and visitors shopping; -guards and policemen patrolling; -cleaners collecting trash cans; -delivery guys doing their jobs; -informal trash collectors arranging their load on carts; -people parking bikes.	-shopkeepers and residents eating on the street side; -people cooking; washing and sunning clothes; resting in front of their house and watching the street, smoking or speaking on the phone, sleeping, walking the dog; stopping on bikes to check their phones; -someone combing her hair; -someone adding strings for plants to grow over the street	-neighbours chatting under improvised covers in front of their house, near-by the bike repairing place, or when meeting each other on the street; -visitors smoking and drinking tea in front of the tea shop; -children playing on the side of the street; -people eating outside the small restaurant on the segment; -passers-by stopping to chat with shopkeepers.

Table 24: Human activities recorded on Penglai Road during the predefined intervals of observation

Human activities on Penglai Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-people shopping; peeling and washing vegetables on the side of the street; parking bikes; delivering and unloading merchandise; -guards and cleaners doing their jobs; -workers rebuilding the store facades	-shopkeepers sitting in front of shops; -people sunning clothes; checking the displaying board; sitting and watching the street; stopping to speak on the phone; -guards sitting outside; shopkeepers eating in front of their shop.	-shopkeepers and residents sitting and chatting; -kids playing; -adults playing cards; -neighbours discussing at lane entrances or at shops.

M set:

Table 25: Human activities recorded on Jiashan Road during the predefined intervals of observation

Human activities on Jiashan Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-people shopping; sunning clothes; waiting for bank services; -delivery; selling and arranging merchandise; -restaurant workers cutting and cleaning sea food; washing tea cups; throwing garbage; -workers renovating the facilities on the segment; workers repairing bikes.	-people checking and speaking on the phone; smoking; sitting on bikes; walking dogs; - shopkeepers and residents eating on the side of the street.	-people playing cards and Mah-jong; -neighbours and shopkeepers chatting at the lane entrances or in front of shops; -visitors and tourists eating at the restaurants; -passers-by playing with the animals at the pet shop.

Table 26: Human activities recorded on Xiangyang Road during the predefined intervals of observation

Human activities on Xiangyang Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-shopping; -delivery; -selling and arranging merchandise; deshelling sea food; peeling vegetables; -workers renovating shops or fixing the public facilities on the street; -collectors packing cardboard boxes.	-shopkeepers eating or resting on bikes outside the stores; -someone feeding her baby; -kids playing at the musical toys in the company of adults; -people smoking, speaking on the phone or playing with dogs; -passers-by stopping to read real estate offers	- women chatting in front of a clothes store; -passers-by stopping to chat with the shopkeepers and other neighbours; -men playing cards or simply relaxing in front of the bike store.

Table 27: Human activities recorded on Shaanxi South Road during the predefined intervals of observation

Human activities on Shaanxi South Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-people shopping; -shopkeepers throwing trash or serving clients; -workers painting the fences; repairing shoes, repairing bikes on the pavement; -cleaners and delivery guys doing their jobs; -collectors loading their carts with materials.	-guards sitting at the lane entrance, sometimes eating; -shopkeepers sitting and resting on bikes; -someone watching the street behind the lane gates; -a woman with her child standing outside; -people smoking on the side of the street; -passers-by stopping to read real estate offers; -someone taking pictures of the Bourgogne Compound; -someone resting on a chez-long chair near the entrance to Jiashan Market.	- people eating outside the small restaurants; sitting and chatting with the guards at the Jiashan lane entrance; -children jumping rope in front of their mother's flower shop; -kids sitting on chairs in front of the bike repairing shop, accompanied by adults.

Table 28: Human activities recorded on Mengzi West Road during the predefined intervals of observation

Human activities on Mengzi West Road (9:30am-11:30am; 1:00pm-4:00pm)		
Activities on the North side of the street		
Necessary Activities	Optional Activities	Social Activities
-street cleaners doing their jobs; -workers painting the fence or repairing the facilities on the segment.	-people stopping randomly on bikes to check their phones, or resting in the shadow for short times.	-delivery guys, street cleaners or drivers chatting; -someone speaking to the security guard; -two lovers speaking while sitting on the border
Activities on the South side of the street		
Necessary Activities	Optional Activities	Social Activities
-people shopping; waiting for taxis; speaking on the public phone; -security guards, street cleaners and delivery-men doing their jobs; - trash collectors arranging their load on carts; -workers loading and unloading at the logistic store; -vendors cooking snacks, fixing bikes.	-residents resting at the lane gates, sometimes even sleeping; -shopkeepers sitting on the border or on bikes, smoking.	-residents chatting and drinking tea at the gates of the compound or in front of the tobacco store; -children playing in front of shops.

Table 29: Human activities recorded on Liyuan Road during the predefined intervals of observation

Human activities on Liyuan Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-street cleaners, guards, delivery-men doing their jobs; -people shopping vegetables, fruits, steamed buns and snacks; parking bikes; -shopkeepers arranging merchandise and serving clients; -informal collectors arranging their loads; -people fixing their bikes. -a shop owner removing the marks of a designated parking space in front of her shop	-real estate and massage store workers coming out on the street to smoke or to rest; -someone stretching; -a lady sunning clothes on the compound fence; -some people eating or resting in front of the stores.	-parents and grandparents chatting while attending children in rocking toys; -other children playing in front of shops; -neighbours chatting near the security guards room; -residents stopping to chat with shop assistants.

Table 30: Human activities recorded on Xietu Road during the predefined intervals of observation

Human activities on Xietu Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
- people waiting at intersections, for taxi or in bus stops; -people waiting for bank services, parking bikes, shopping; guards, cleaners, delivery guys doing their jobs; -electricians and topographers inspecting the street; -workers improving the facilities on the street or doing their job at the car wash; -shop-keepers arranging merchandise; -collectors folding cardboards; -informal vendors selling flowers or fruits.	-people reading the real estate offers; checking their phones; walking dogs; -visitors watching the street while waiting in front of buildings; -someone taking pictures of the Amway building; -a few people smoking outside of the bank; -people and security guards resting on the bench in front of the car wash; -the female employees at the SPA79 doing aerobics in front of the store.	-people encountering each other and chatting; -employees relaxing front of the hairstyle and massage stores; -tourists waiting in front of the Magnolia Hotel; -residents, shopkeepers and cleaners sitting in front of the newspaper kiosk; -the customers and the shop assistants chatting.

[79] Professional store with massage and therapeutic water-treatments.

Table 31: Human activities recorded on Qixia Road during the predefined intervals of observation

Human activities on Qixia Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-delivery-men waiting for instructions at the delivery centre; -people shopping; -workers cleaning the street; -shopkeepers arranging the merchandise, peeling veggies or cooking on the segment; -policemen and parking guards watching the street or applying fines; -workers building-up the facades of some shops and doing car washing.	-old residents sitting out on chairs watching the street; -people smoking, standing, checking their phones, walking dogs; -cleaners and shopkeepers resting.	- older residents and shopkeepers chatting in front of shops, sometimes with children around them; -groups of people having lunch outside the restaurants; -passers-by stopping to chat if they knew each other.

Table 32: Human activities recorded on Rushan Road during the predefined intervals of observation

Human activities on Rushan Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-intense shopping; loading and delivery; -people waiting for taxi; waiting for the bus; moving furniture; parking or unlocking bikes; -workers cleaning the street, planting the green stripes along the street; renovating shops, advertisements, and other facilities on the segment; -shopkeepers arranging merchandise and cleaning the windows of their shops, throwing trash; -someone collecting cardboards.	-people standing in front of shops watching the street; -hairdressers resting on the low fence in front of their store; -shopkeepers resting on parked bikes; -people reading real estate advertisements; walking their dogs; -older people watching the street while sitting on chairs; -a shopkeeper breastfeeding her baby in front of her family's small restaurant.	- residents chatting in front of shops; -people stopping to chat with acquaintances or with shopkeepers on the segment; -shopkeepers, delivery guys chatting in groups; -kids playing in front of shops; -young office workers chatting after having lunch; -workers eating near-by the hotel, behind the market.

Table 33: Human activities recorded on Shangcheng Road during the predefined intervals of observation

Human activities on Shangcheng Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
-individuals waiting for the bus, for taxis or for other people; -guards watching the street; -people parking bikes; -street cleaners and delivery-men doing their jobs; -people waiting at intersections, or shopping.	-real estate employees smoking; -a shop assistant at the fruit shop sitting outside; -people reading advertisements and speaking on the phone; -one worker sitting on the border near FamilyMart80 while quickly eating his lunch; -some people resting on borders in shade at summer; -food preparers sitting on the pavement in front of the kitchen of the educational centre; -a guard sweeping the pavement at the educational centre.	- people meeting acquaintances on the street and chatting shortly.

Table 34: Human activities recorded on Pucheng Road during the predefined intervals of observation

Human activities on Pucheng Road (9:30am-11:30am; 1:00pm-4:00pm)		
Activities on the West side of the street		
Necessary Activities	Optional Activities	Social Activities
- people waiting for the bus; -cleaners doing their jobs; -drivers waiting near their cars.	-walking dogs.	-some people chatting shortly while waiting in bus stops.
Activities on the East side of the street		
Necessary Activities	Optional Activities	Social Activities
-workers repairing bikes; -guards watching the entrances of compounds; -people waiting for bank services, or waiting for their kids at the American Eagle Institute; -people shopping at the two small stores on the street; -someone sunning clothes on the pavement near the tobacco store; -people waiting for taxi.	- employees of the real estate offices speaking on the phone, smoking or resting on bikes.	- at the car wash, there were sometimes children playing, while the staff was sitting around and chatting.

[80] Popular Japanese convenience store franchise chain, widely available in Shanghai as well

Table 35: Human activities recorded on Nanquan Road during the predefined intervals of observation

Human activities on Nanquan Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
- people waiting in bus stops or for taxis, parking bikes; -shopkeepers selling and arranging merchandise; -cleaners and delivery-men doing their jobs; -workers repairing the facilities on the street and maintaining the planting areas; working at the improvised workshops.	-people walking dogs; reading news at the display boards; -shop assistants and hairstylists resting or waiting for clients outside their store, smoking or sometimes eating; -real estate employees resting on chairs behind the lottery kiosk.	- groups of people playing cards, Mah-jong and chess on the south-eastern corner of the segment; -kids playing in front of the shops or at the lanes entrances; -people chatting near the vegetables shop; -people encountering each other and chatting shortly.

Table 36: Human activities recorded on Pudong South Road during the predefined intervals of observation

Human activities on Pudong South Road (9:30am-11:30am; 1:00pm-4:00pm)		
Necessary Activities	Optional Activities	Social Activities
- security guards, delivery guys and cleaners doing their jobs; -construction workers renovating the stores; workers fixing the facilities along the road; -real estate employees advertising their offers on the street; -people waiting for taxi or for bank services.	-few shopkeepers standing outside in front of the shops; -hairstylists resting on bikes parked outside their salon; -some people taking short rests on borders; -someone doing warm-up exercises in front of the SPA store.	- someone stopping to chat with the guards or with the shop assistants; - people encountering acquaintances and stopping to chat; - elder people chatting occasionally outside the cultural centre.

Appendix E3: Behavioural mappings on selected streets

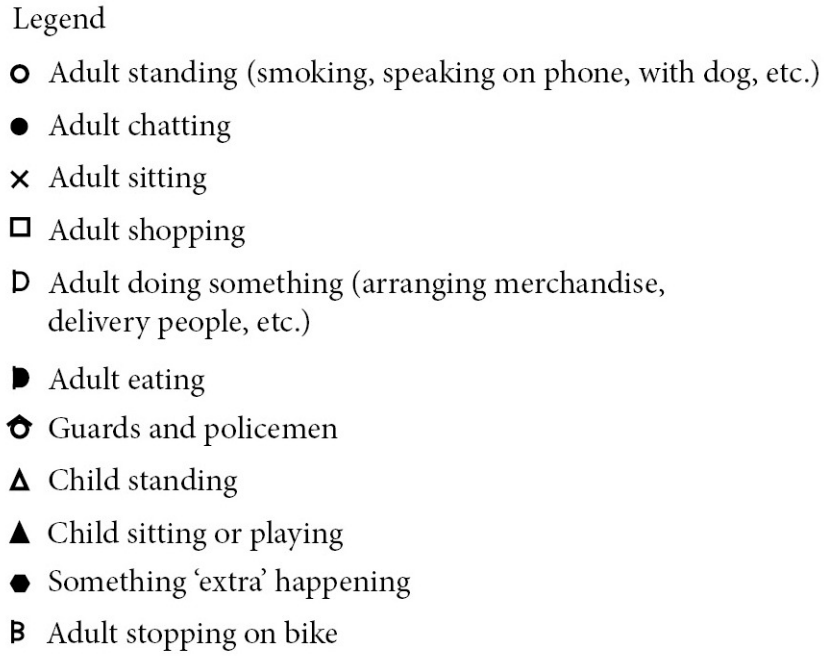


Figure 48: Legend with the symbols used to indicate the different activities of people on the behavioural mappings

Figure 49: Behavioural mappings on Xicangqiao Street (S set)

Figure 50: Behavioural mappings on Wenmiao Road (S set)

Figure 51: Behavioural mappings on Penglai Road (S set)

Figure 52: Behavioural mappings on Jiashan Road (M set)

Figure 53: Behavioural mappings on Xiangyang Road (M set)

Figure 54: Behavioural mappings on Shaanxi South Road (M set)

Figure 55: Behavioural mappings on Mengzi West Road (L set)

Figure 56: Behavioural mappings on Liyuan Road (L set)

Figure 57: Behavioural mappings on Xietu Road (L set)

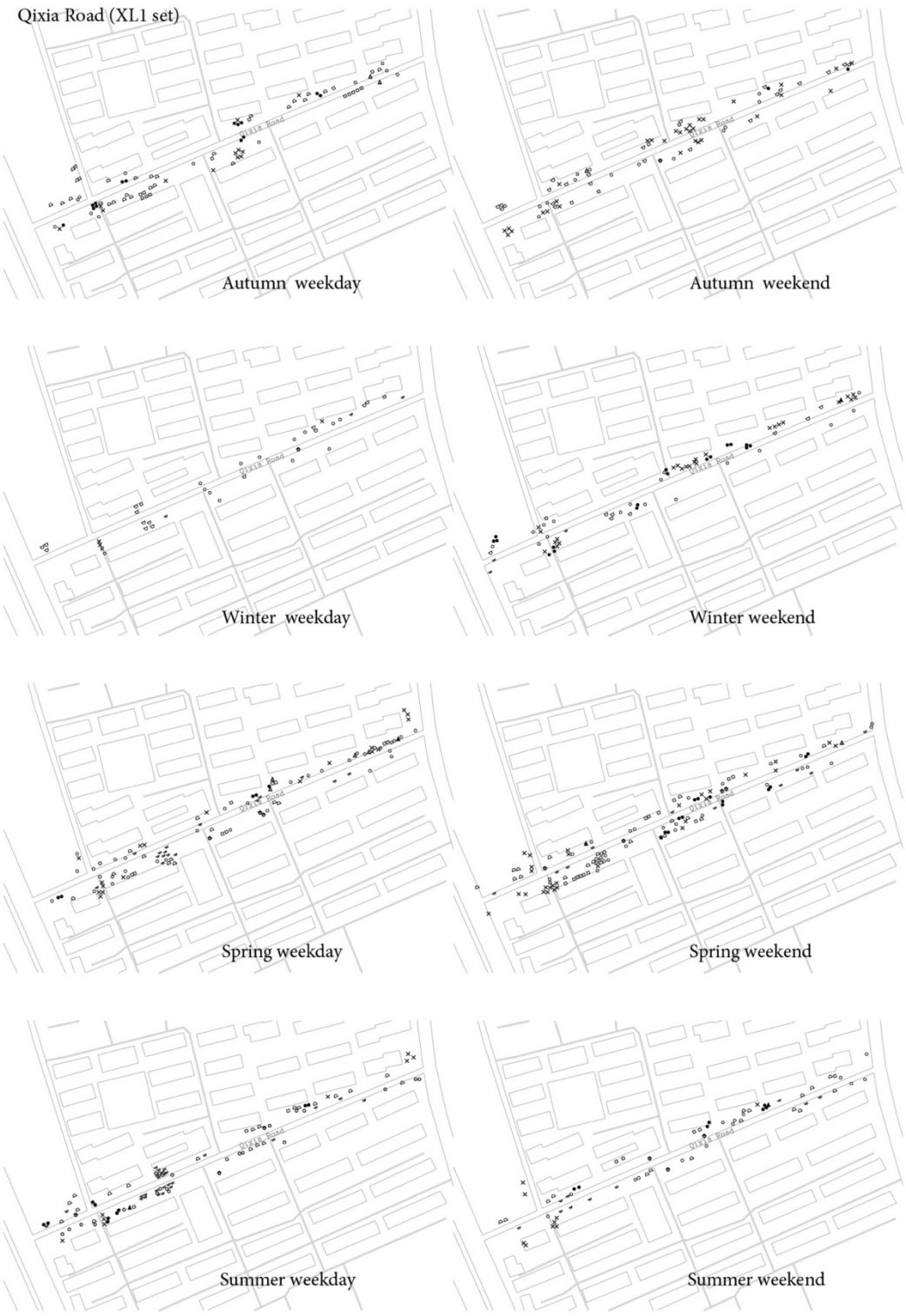


Figure 58: Behavioural mappings on Qixia Road (XL1 set)

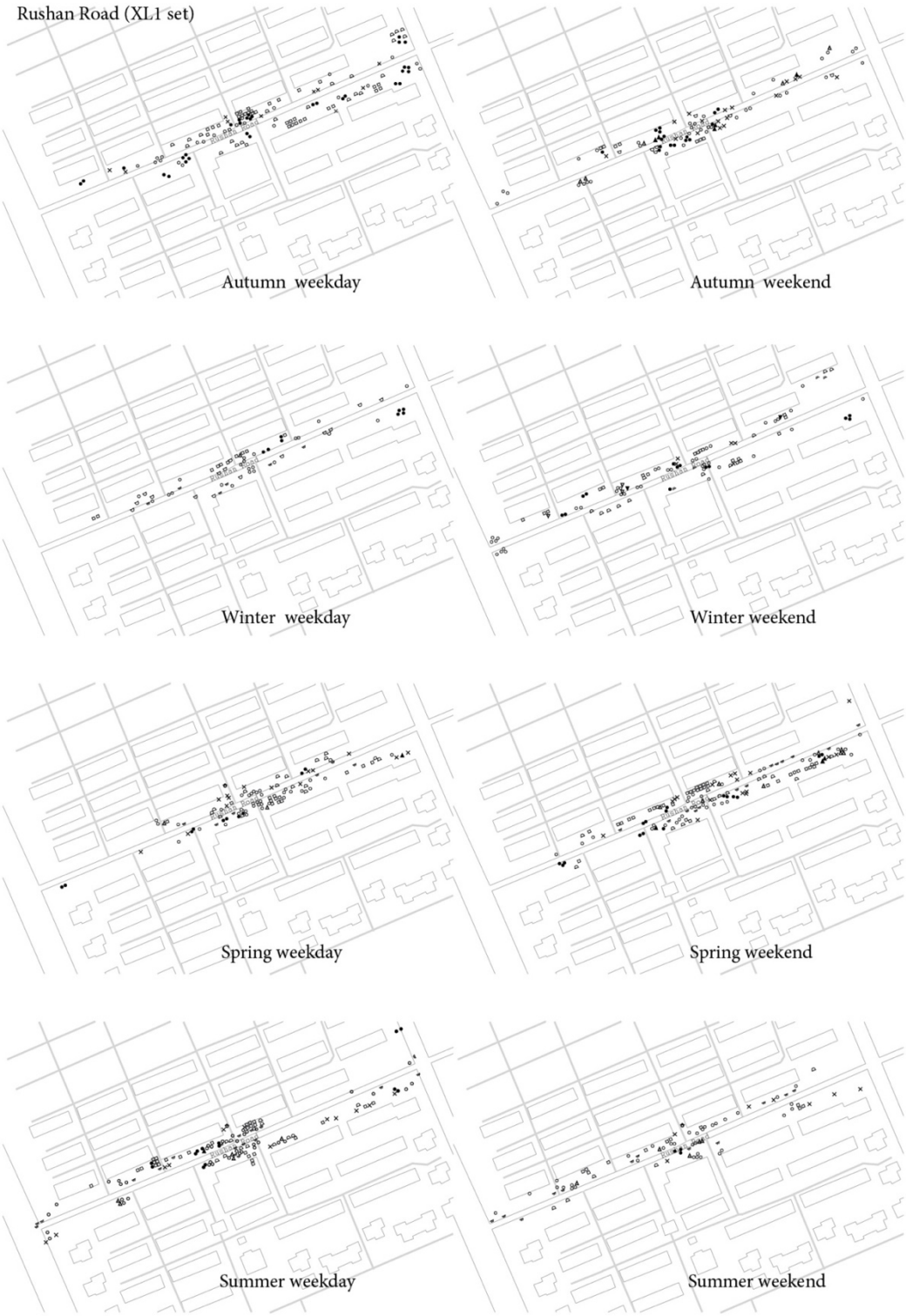


Figure 59: Behavioural mappings on Rushan Road (XL1 set)

Figure 60: Behavioural mappings on Shangcheng Road (XL1 set)

Figure 61: Behavioural mappings on Pucheng Road (XL2 set)

,

Figure 62: Behavioural mappings on Nanquan Road (XL2 set)

Figure 63: Behavioural mappings on Pudong South Road (XL2 set)

Appendices F - Papers from and related to Doctorate Research

1. Istrate, A. L., (2016): *Theoretical Foundations on Liveability at the Level of the Street in Shanghai*. For the Great Asian Streets Symposium (GASS), *Asian Streets in the Dynamics of Change*. Singapore, 12-13 Dec. 2016. (symposium paper, peer reviewed)

(The paper has been written by Aura-Luciana Istrate. Supervisor Paul Kadetz has contributed by reviewing parts of the paper.)

2. Istrate, A. L., (2016): *Assessing liveability at the level of the community and streets in Asian cities*. For the Workshop: *Adopting an R-Urban model: empowering local communities to develop sustainable built environments in developing countries*, organised by The University of Nottingham and Universitas Islam Indonesia, (British Council – Newton Fund) Yogyakarta, Indonesia, Nov. 30 – Dec. 4, 2016. (working paper)

3. Istrate, A. L., (2015): *Liveable Streets in High Density Cities of China: the case of Shanghai.* For *International Making Cities Livable*, IMCL Conference, Bristol, UK, 29 June – 3 July 2016. (conference paper)

(The paper has been written by Aura-Luciana Istrate. Supervisors Fei Chen and Austin Williams have contributed by reviewing parts of the paper.)

4. Istrate, A. L, Tai, Y., (2017): *Reflections on the importance of water for liveability in Shanghai*, for Embrace the Water, a Cities of the Future Conference, Gothenburg, Sweden, 12-14 June 2017. (outline paper)

(The paper has been written by Aura-Luciana Istrate in collaboration with Yuting Tai.)